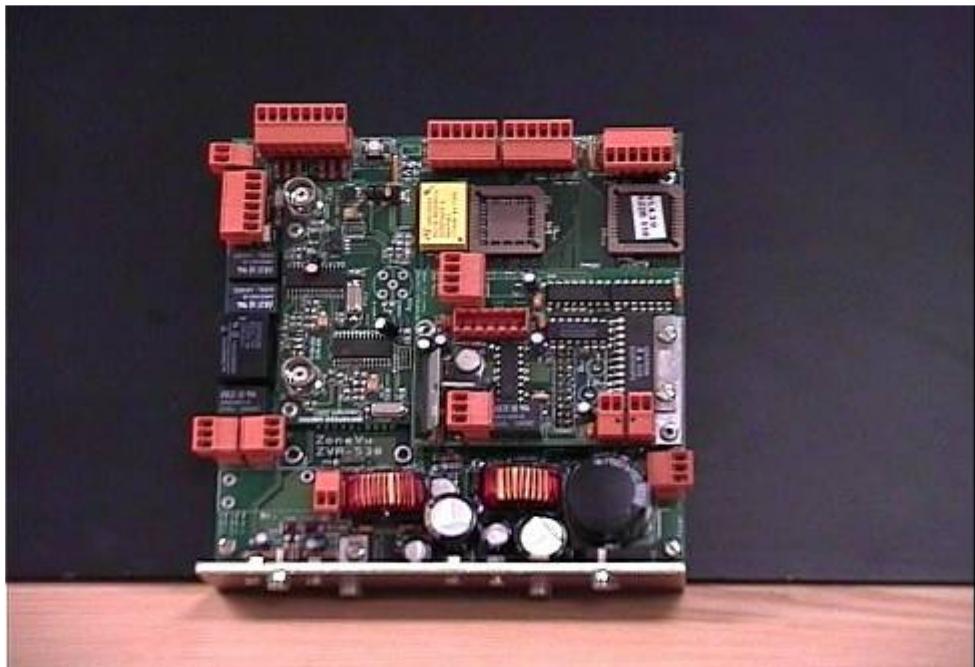


ZVR-530



USER MANUAL

ZoneVu



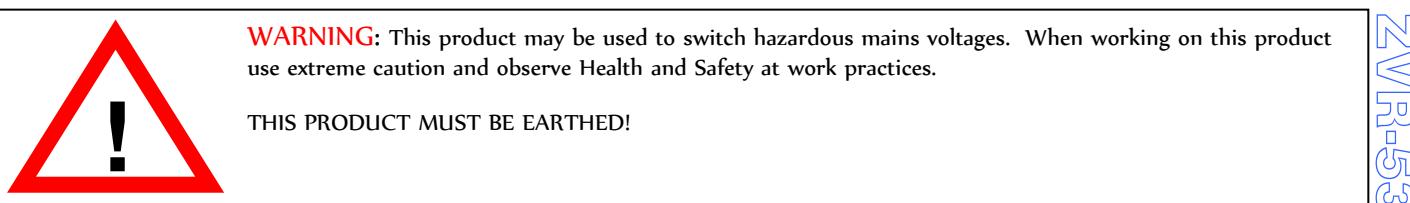
ZVR-530
DC Variable Speed
Telemetry Receiver
Issue 16

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Safety Precautions

1. Carefully read this Product Manual prior to commencing installation and configuration.
2. Before working on this product, power it down and remove the power leads. Removing the module or PCB's from their environmental enclosure may cause damage to the product and present an electric shock and fire hazard.
3. To reduce the risk of electric shock and fire hazard do not operate this product without the protection of a suitable environmental enclosure.
4. Do not install or operate the product near water.
5. Do not install or operate this equipment outside, unless it is fitted inside a suitable environmental enclosure E.G. IP rated camera housing.
6. Only install this equipment into a suitable environmental enclosure.
7. If work is carried out on the product with environmental enclosure panels and covers removed ensure full electrostatic handling procedures are adhered to.
8. Ensure the product is operated in a suitably temperature controlled environment within the specification limits.
9. Do not operate the product in humidity greater than 90%.
10. Do not drop objects of any kind onto the product when installing it. This may cause electric shock, fire hazard or product malfunction.
11. Avoid liquid spillages on the product. This may cause electric shock, fire hazard or product malfunction.
12. Never attempt to service this product yourself. This product contains no serviceable parts. Refer all servicing requirements to the Meyertech Service Centre or appointed Meyertech Service Agent
13. Do not operate this product if
 - 13.1. Any product power leads are damaged.
 - 13.2. If the product has been exposed to rain.
 - 13.3. If the product has been dropped or the assembly has been damaged.
 - 13.4. If liquid has been spilt on the product.
 - 13.5. If the product has malfunctioned or is not operating to its functional specification.
14. This product must only be operated with the power supply provided or if supplied without a power supply, by the type of power source indicated in the specification.
15. Follow all warnings and instructions marked on the product and in this manual.



Introduction

Thank you for purchasing this product. The following instructions will guide you through the installation and configuration of your ZoneVu ZVR-530 telemetry receiver. Please carefully read the rest of this manual before attempting to operate this product. This will ensure that the best performance is obtained.

What is a ZVR-530?

Meyertech's ZVR-530 receiver continues in the tradition of Meyertech telemetry receivers. Building on the virtues of the ZVR-510, itself an industry icon, the ZVR-530 does not disappoint.

All aspects of the ZVR-510 specification have been significantly improved to provide even more features made possible by harnessing leading-edge embedded CPU technology coupled with precisely developed firmware to deliver a blend of performance and refinement which will challenge your concept of camera control.

Improvements in performance include independent Pan, Tilt and Lens speeds providing the operator unparalleled levels of control.

Enhanced alarm management facilities now mean that alarms can be handled locally by the ZVR-530, reported centrally to a site or reported **Intersite** when managed by the ZoneVu **Site Controller** family of products.

With the complexity of today's camera heads one of the ZVR-530's major benefits is the ability to remotely configure and backup the plethora of features today's digital cameras offer.

The features described in this manual refer to :

Version 1.21.0.5 of the ZVR-530 firmware

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KEY FEATURES

- **Variable speed DC drive telemetry receiver**
- **Compact camera housing design**
- **Independent Pan, Tilt and Lens speed control with configurable Zoom sensitive speed scaling**
- **Multiple Dynamic Privacy Zones configurable to be Opaque or have Variable Translucency**
- **Configurable Patrols and Mimics**
- **Accurate 10 bit preset positions**
- **Pan and Tilt End Stops**
- **Timeout facilities**
- **2-wire or 4 wire**
- **Supports multiple control protocols**
- **Diagnostic facilities**
- **Static and Dynamic captions**
- **Support for digital camera configuration and backup**
- **Independent PIN protected configuration**
- **6 Contact alarms + video loss**
- **Local alarm handling**
- **Remote alarm reporting**
- **6 Relays**
- **Remote configuration and backup via Meyertech's Mpower software**
- **16-bit embedded processing power**

ZVR-530 Overview

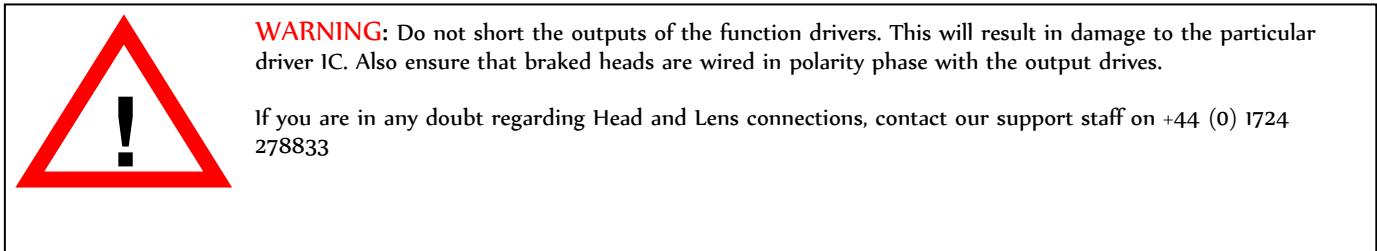
The ZoneVu ZVR-530 telemetry receiver is a composite assembly comprising four PCBs:

- P104 PCB Microprocessor board
- P105 PCB Video processor board
- P106 PCB Head and lens driver board
- P107 PCB Motherboard

The P104 board contains the CPU, ROM and RAM circuitry. It is a SMD multi-layer PCB.

The P105 is the video processing circuit and is responsible for providing features such as OSD, privacy zones, dynamic text and configuration menus. The camera video fail alarm is also monitored here.

The P106 drives the Pan and Tilt head and lens functions, Zoom, Focus and Iris. All drives provide full independent variable speed control with the exception of the Iris function, which is dual speed. The P106 also provides control of the Iris auto/manual facility.



P107 is the Motherboard. It contains the power circuitry, glue logic, serial communications ports, alarm processing circuitry and various relays for camera auxiliary functions such as Wipe. The three PCBs plug into the P107 and secure with screws.

The whole ZVR-530 assembly is mounted onto an aluminium bracket. The bracket serves three purposes:

1. The easy to install bracket incorporates universal mountings allowing it to be mounted either horizontally or vertically.
2. It acts as a heat sink for the various PSU components. It also provides an earth bonding point.
3. Provides mechanical rigidity for the ZVR-530 assembly.

Telemetry Data Network

The ZoneVu telemetry data network can be either RS422 or RS485 and either Simplex or Half-Duplex. Depending on which type of network you have or intend to have will determine how the receivers will be connected. For an RS485 network, the receivers MUST be wired in a 'daisy-chain' fashion to preserve the characteristics of the RS485 network. RS422 is generally more tolerant and in some circumstances can be either 'daisy-chain' or 'star' wired.

Correct Termination of the data line is also very important to prevent 'standing waves' and reflection:

1. For RS422 daisy chain connection, terminate the last ZVR-530 RX input on the line into 120R.
2. For RS485 daisy-chain connection, terminate the last ZVR-530 RX input on the line into 120R.
3. For RS422 star connection, terminate all ZVR-530 RX input's on the line into 120R x the number of receivers connected EG for 10 receivers terminate each one into 1K2 and ensure the on-board ZVR-530 termination is switched off on all receivers.

Note the ZVR-530 has an on board 120R termination resistor which can be remotely switched on or off.

The ZoneVu equipment driving the telemetry network will be one of the following models:

- ZVM-164 which can drive up to 16 ZVR-530's RS422 simplex only
- ZVM-328 which can drive up to 32 ZVR-530's RS422 simplex only
- ZSC-500 which can drive up to 128 ZVR-530's RS422 simplex/half duplex RS485 half duplex
- ZSC-1000 which can drive up to 256 ZVR-530's RS422 simplex/half duplex RS485 half duplex
- ZVS-MSI-48 which can drive up to 192 ZVR-530's RS422 simplex/half duplex RS485 half duplex
- ZVK-007 which can drive up to 64 ZVR-530's RS422 simplex only
- ZVK-77D which can drive up to 64 ZVR-530's RS422 simplex only

It should be remembered at this point exactly how important the network cabling is to the overall performance of any system and, indeed to the quoted performance of any particular piece of equipment connected to the network, including telemetry receivers. Care should therefore be taken to plan cabling routes properly and the use of the correct type of data cable is imperative. Meyertech recommend:

RS422 / RS485 - Beldon 1-pair 9841, 2-pair 9502, 1-pair 8761 or equivalent

A common misconception with RS422 and RS485 networks is that no 0V connection is required between the transmitting equipment and the receiving equipment, and that only the data pair is required! Well actually this WILL work on your bench, but when you come to install it in the field it may or may not work. The reason for this is basic electrical principles. It will work on the bench because the earth potential difference will be within that specified by the IC manufacturers. In the field it may well be outside the specification, all be it intermittently. Any electrical circuit requires a 'return-path' to work. On the bench this is achieved via the mains earth circuit. In the field there maybe a potential difference between the two earth points of 50 volts or more, which is well outside the IC specification for it to function correctly. Normally the outer screen of the data cable can be used as the 0VDC cable but in noisier environments it is important to use a separate cable even if it means a third pair. In this instance the outer shield should be connected to 'dirty' earth at one end only!

VICTA-ZoneVu 'down the coax' telemetry, is not directly supported by the ZVR-530. If you want to be able to control the ZVR-530 via VICTA (which may be the case if you are using a ZVM-328 matrix) you will require a ZVD-V42-ZV VICTA to RS422 ZoneVu driver module, which should be located at the receiver end. Note. When controlling the ZVR-530 via VICTA certain advanced feature and functionality will not be available EG alarm reporting, camera configuration ETC.

Turnaround time

The ZVR-530 has a data turnaround time of approximately 1ms.

Camera Head Pre-assembly and Testing

It is important to consider the time and expense that can be saved by pre-assembling and testing the ZVR-530, pan and tilt head, lens and camera prior to installation on-site. Pre-assembly normally involves the following tasks (in no particular order):

1. Fixing the camera and lens into the camera housing.
2. Fixing the ZVR-530 into the camera housing.
3. Fixing the camera housing onto a DC pan & tilt head.
4. Producing the wiring harness for the ZVR-530, P&T head, Camera and lens.
5. Initial self test
6. Network configuration and testing
7. Advanced features configuration

Installation

The ZVR-530-PCB has been designed to be installed within the camera housing. There are a number of technical and non-technical reasons for this. Firstly from a performance perspective it is important to understand that the best performance of the receiver is achieved when it is located as close as possible to the camera, lens and pan and tilt head. The reasoning behind this is that the further away the ZVR-530 is located E.G. in a weatherproof box tens of meters away, the longer the cable needed to connect back to the camera functions. Long cable runs will introduce potential differences and noise, both of which will affect performance. Secondly the temperature and humidity are controlled inside a camera housing which is a good environment for the ZVR-530 to live in. Thirdly the appearance of the complete camera head assembly is cleaner and more aesthetically pleasing. Finally it will save you money! Meyertech therefore strongly recommend installing the ZVR-530 inside the camera housing.

Installing the ZVR-530 is straightforward due to the universal mounting bracket it is attached to. A template for the universal bracket can be found towards the end of the manual.

If the ZVR-530 is installed inside a weatherproof box the cabling to the ZVR-530 MUST be segregated according to their function E.G. you would not want to mix mains with the head feedback cabling. The correct type of cables should also be chosen according to function EG you would choose a screened cable for head feedback functions and similarly a coax cable for the video. Never be tempted to run all the functions in a multicore cable. To help wire the ZVR-530 use the connection diagram provided with this manual.

Power

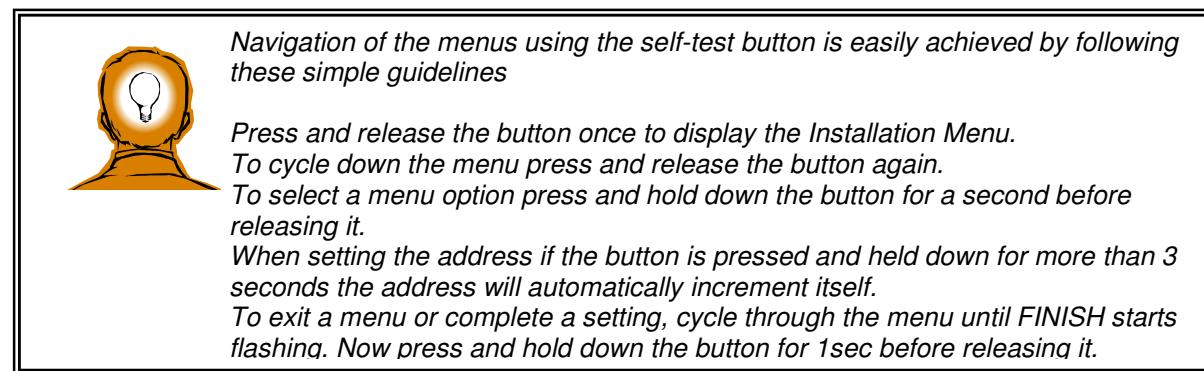
The ZVR-530 should be powered from 24VAC 50Hz +/-10%. Meyertech can supply, a suitable toroidal transformer, Part number ZVR-530-PSU.

The power circuitry of the ZVR-530 is designed to withstand short power dips of up to 500ms (dependant on loading) without interruption to its normal operation. If interruptions of 100% to the input power occur (i.e. not short power-dips), a full ordered power cycle is required to ensure correct operation. A full power cycle must include a minimum of 3 seconds with the power disconnected to allow the circuits to discharge.

Installation Menus

Once all the cabling has been connected to the ZVR-530, head, lens and camera it can be tested using the self-test which allows the receiver to be exercised without the need for it to be connected to a ZoneVu controller.

To do this, simply plug a monitor into the video output of the receiver and press the self-test button once to activate the Installation Menu.



Auto Test

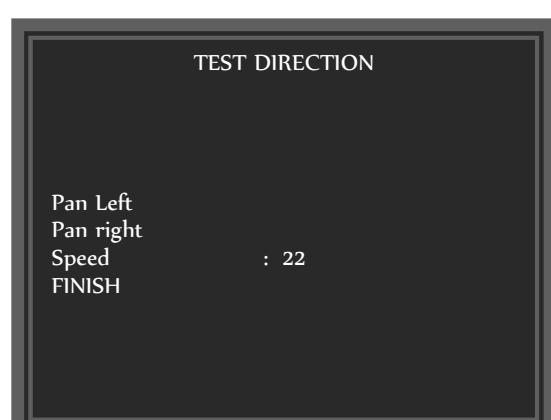
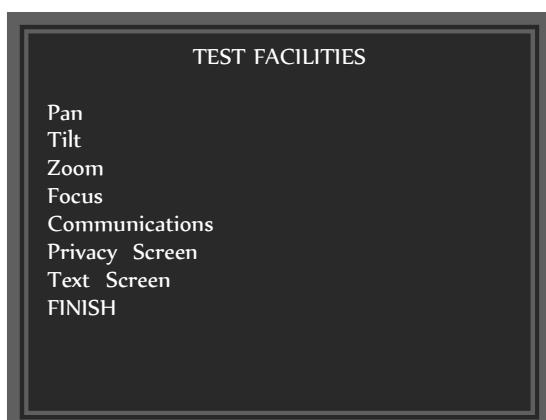
Select **Auto-Test** from the menu. This tests the basic PTZF functions by automatically cycling through and exercising each of them for a few seconds. When the Auto Test is complete the Installation Menu is automatically exited.



Test Facilities

From the Test Facilities menu you can test manually the functions Pan, Tilt, Zoom and Focus, different speed settings can also be tested from this menu.

Selecting any of the menu options **Pan**, **Tilt**, **Zoom** and **Focus** will display a menu similar to the one shown below.



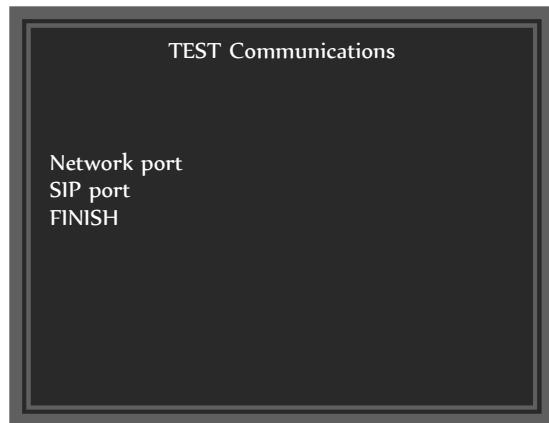
To exercise each function manually cycle through the menu until the option you require is flashing. Now select the function. The ZVR-530 will exercise the function until you select **FINISH**.

To change the speed, highlight it in the normal way and then select it. You can now step through the speed range of 1-32. When the speed reaches 32 it will loop back to 1 at the next step.

Test Communication

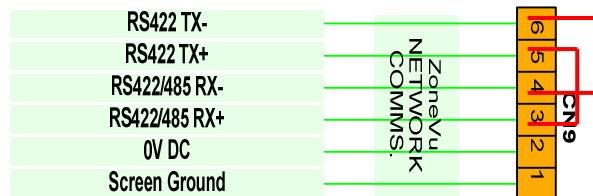
Selecting the **Communications** menu will display the **Test Communications** menu.

To begin a test cycle through the menu and select the desired test, the receiver will then begin the test. Once the test has been completed the result will be shown, either "PASSED" or "FAILED".



"NOTE" Before a communication test can be started a loopback connector is required, this makes sure that the Telemetry Receiver sends and receives the same data and compares the two. If any data is lost the communication test fails.

Network port (RS422 and RS485)



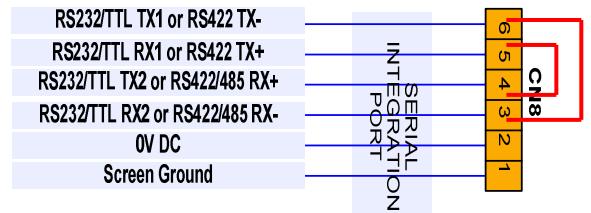
Legend:
Connection = /

SIP port

Connection for ZVR-530 RS232



Connection for ZVR-530 RS485



Privacy and Text Screen

The privacy and text screen tests are primarily for factory testing. A grid is drawn on the screen to test the privacy zone or captioning generating chip. Press the button to return to the previous menu.



Telemetry Setup

Before the ZVR-530 can be connected to a ZoneVu controller (see *Telemetry Data Network*) some basic network configuration needs to be carried out.

The simplest way to do this is on the bench with a monitor connected the video output of the ZVR-530.

Setting the Address

As with all equipment which communicates over a network, ZVR-530 requires a unique network address. The valid address range for the ZVR-530 is 1 to 4096. To set the address, first highlight and select the Address option in the Installation Menu.



Once selected the current address is re-displayed as a 4-digit number, with the first digit flashing.

To change the first digit, press the button repeatedly until the correct number is displayed.

To move onto the next digit, press and hold the button down for 1 second.

After the last digit has been changed, press and hold the button down for 1 second to return to the installation menu. The address is set immediately.

“NOTE” Setting the address for older versions of the Software/Hardware may vary; therefore please refer to Users Manual that was supplied with the original product.

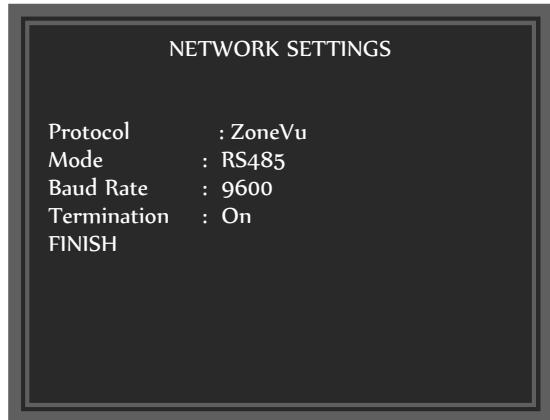
Network Settings

The network settings of the ZVR-530 can be configured to interface to different types of data transmission network. Both the network type and BAUD rate can be altered here. Navigate the menu as previously to select and configure each setting.

The MODE can be set to either RS485, which requires a single half-duplex data link or to RS422 which requires a single half-duplex data link but with a separate transmit and receive channel.

The Baud rate can be manually set to either 2400, 4800, 9600, 19200 or 38400 Baud. Alternatively the Baud rate can be set to auto for Meyertech equipment which supports auto selection. With this option set the ZVR-530 auto detects the Baud rate.

The ZVR-530 incorporates on-board termination to terminate the data line when the network is either daisy chained or a single receiver is connected to a driver.



Network Protocol

The ZVR-530 can use five different Network protocols; these are ZoneVu, Old ZoneVu, Pelco P, Pelco D and Forward Vision (subject to change). Please refer to "ZVR-530 Supported Receiver Protocols" for further information.

Selecting the Serial Camera Interface

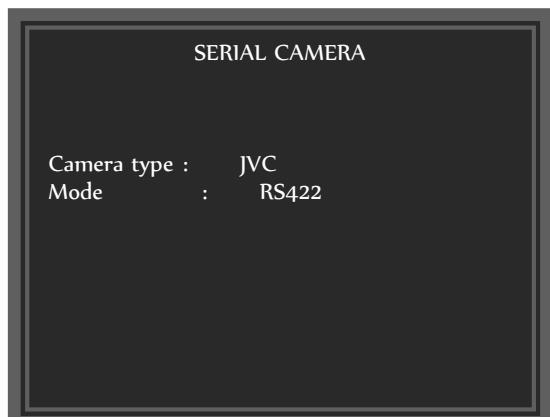
The ZVR-530 supports a serial interface to specified camera types.

The ZVR-530 firmware contains all the drivers for supported cameras, however as the electrical interface to cameras differs, this must be specified at time of order:

1. RS422/485
2. RS232

The range of cameras supported is constantly under development, details of currently supported models and features supported can be found in the Meyertech document [ZVR-530 Supported Cameras](#).

To setup the serial camera interface, select the Serial Camera option. You will see the following menu.



Selecting the camera type will cycle through all available types. The Mode is automatically updated to show the default for the selected camera.

The Mode option can be selected to change the default mode : RS422, RS485 or RS232. This option does not take account of the actual hardware type of the receiver; if a RS422/485 receiver has been order, the RS232 option should not be selected.

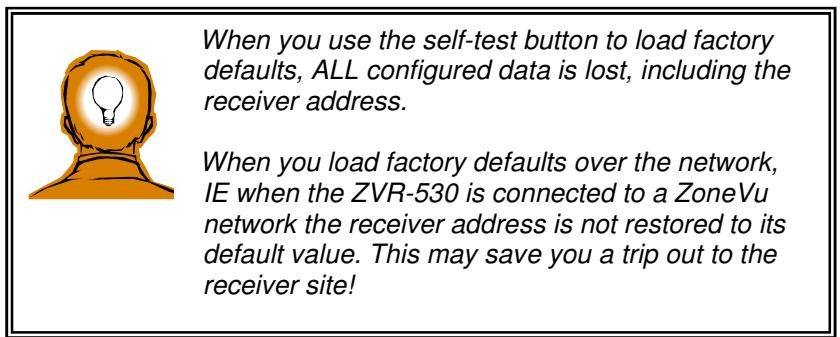
Load Factory Defaults



If you become unsure of the current configuration then the ZVR-530 can be restored to its factory settings.

This should only be done as a last resort though because ALL previously configured data will be lost.
IE factory defaults will be restored including the address.

To load factory defaults select **Confirm**, otherwise select **Cancel** to return to the Installation Menu.



Configuring the ZVR-530

The advanced features of ZVR-530 configuration are achieved when connected to a ZoneVu controller. This maybe in a ZoneVu system on-site or when connected directly to a keyboard.

To configure the advanced features of the ZVR-530 you will require access to a System keyboard such as the ZVK-007 or ZVK-77 connected either directly to the receiver or via a ZoneVu controller such as the ZSC-1000 or ZVM-328. When connected via a video matrix make sure to first select the receiver to a monitor within your view as configuration is via on screen menus.

The configuration menus of the receiver can also be accessed by most keyboards & control software capable of controlling the receiver. See section 'Configuration using any other controller'.

Configuration using a ZVK-77

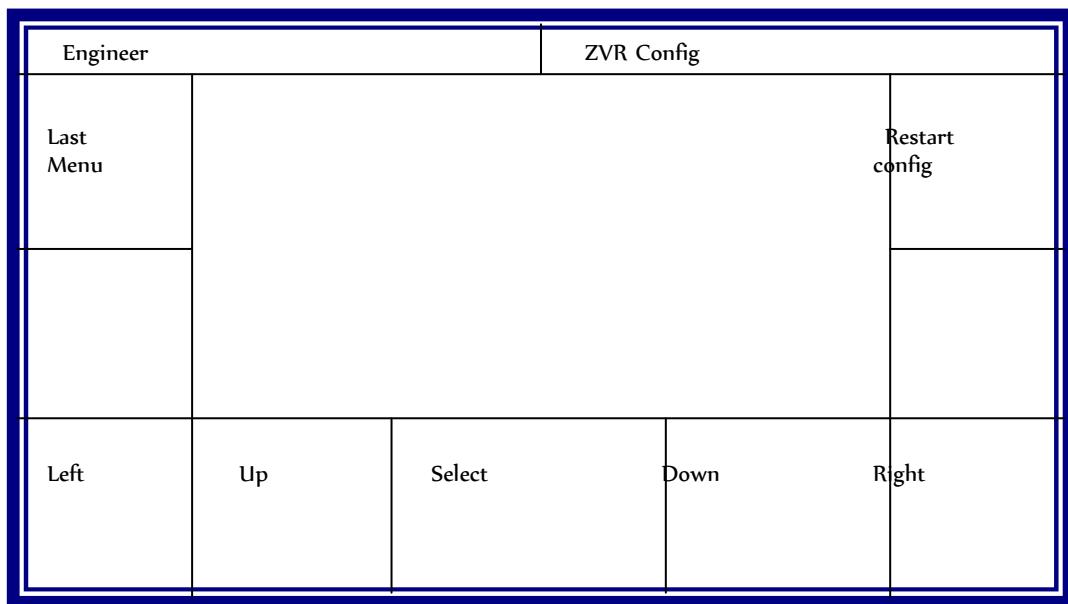
To configure the ZVR-530 using a ZVK-77 system keyboard you will first need to access the two ZVR Configs. Menus shown below. To do this you will need to log onto the keyboard at the relevant level which permits access to the Program / Setup option. For further details please refer to the relevant section in the ZVK-77 User and configuration manual for how to access the ZVR Config. Menus.

ZVK-77 LCD SCREEN (Menu A)

Engineer		ZVR Config		
Type ZVR-x30	Site (local) Monitor 1 Camera 1			
Start Config				
Change Monitor	Select Camera	Select Site	Toggle pot display	

Menu Option	Description
Engineer	The name of the current user logged onto the ZVK-77
ZVR Config.	The current menu
Type ZVR-x30	Select this to change receiver type
Start config	Select to start configuration
Select Camera	Select this option if you wish to configure a different ZVR-530
Change Monitor	Select this option if you want to change to display the ZVR-530 menus on a different monitor
Select Site	Select this option if you want to configure a ZVR-530 on a different site
Toggle Pot Display	Turn on the displaying of the feedback potentiometer values

ZVK-77 SCREEN (Menu B)



Menu Option	Description
Engineer	The name of the current user logged onto the ZVK-77
ZVR Config.	The current menu
Last Menu	Select to display the last ZVR-530 configuration menu (or exit)
Left	Navigate the on screen menu. Move Left
Up	Navigate the on screen menu. Move Up
Select	Select the menu option
Down	Navigate the on screen menu. Move Down
Right	Navigate the on screen menu. Move Right
Restart config	Return to the top level menu
Site	Displays the current site you are on

Configuration using a ZVK-007

To configure the ZVR-530 using a ZVK-007 system keyboard you will first need to access the ZVR Config. Menu . To do this you will need to log onto the keyboard at the Supervisor Level, which permits access to programming functions such as ZVR Config. For further details on how to do this please refer to the relevant section in the ZVK-007 User Manual. Then follow the 'ZVK-007 Users Manual-Addendum' instructions given below.

ZVK-007 USERS MANUAL - ADDENDUM

ZVR CONFIG allows camera receivers to be configured from the comfort of the keyboard by utilizing the camera receiver **OSD** (On Screen Display)

The display will show

SUPERVISOR CONFIGURATION

LEVEL ZVR CONFIG

STEP 1 Press the **ENT** key the display will show

SUPERVISOR 510 CONFIG MONITOR-1

LEVEL ESC TO EXIT CAMERA-1

STEP 2 Select the camera you want to configure using the numeric keypad and pressing the **ENT** key.

STEP 3 Press the **MODE** key. The display will change to

SUPERVISOR 510 CONFIG MONITOR-1

LEVEL PROG TO SELECT CAMERA-1

STEP 4 Press the **PROG** key to select the type of receiver: ZVR-510, ZVR-530, or ZVR-500

STEP 5 Press the **MODE** key. The display will change to

SUPERVISOR 530 CONFIG MONITOR-1

LEVEL PROG TO CONFIG CAMERA-1

STEP 6 Press the **PROG** key to access the camera receiver **OSD**. The display will show

ACCESS GRANTED and then **ZVR TALK MODE**

STEP 7-8 The operation of the menus varies according to the receiver type.

ZVR-530 Navigation

STEP 7 Follow the **OSD** Menus to configure the camera receiver.

The currently selected option is shown in flashing text: Use *UP* and *DOWN* to move the selection, and press *SELECT* to choose the current selection.

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V
R-530

Selecting a menu displays different options, selecting an option allows it to be changed. Options, which require text or numeric input, will clear ready for input when selected. Otherwise the option toggles through the choices each time it is selected.

Text and numbers can be entered directly from the keypad. The **Shift** key toggles between text and numeric modes and the **DEC** key between upper and lowercase text.

To cancel input or return to the previous menu, use the **CANCEL** key. **Note:** using **CANCEL** in the main menu screen, exits configuration mode.

STEP 8 When you have completed configuring the receiver, press the **ESC** key to exit **ZVR CONFIG**.

ZVR-530 Menu Navigation	ZVK-007 Key
UP	LIVE / Joystick up
DOWN	ENC / Joystick down / DEL
LEFT	PIP / Joystick left
RIGHT	ACT / Joystick right
SELECT	ENT / Zoom in
CANCEL	HOLD / Zoom out

Configuration using any other controller

To configure the ZVR-530 using any other keyboard or control software you will first need to have access to the command used to store preset 95. This command will put the receiver into it's main configuration menu.

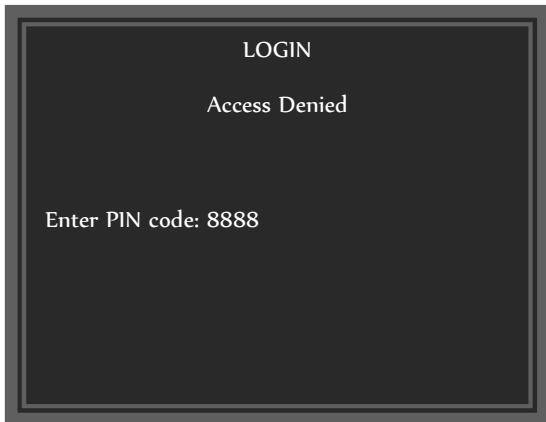
To navigate the menu system and make changes, use the commands shown in the table below.

Keyboard Action	Usage
Joystick Up	Navigate the menu. Move Up
Joystick Down	Navigate the menu. Move Down
Joystick Left	Navigate the menu. Move Left
Joystick Right	Navigate the menu. Move Right
Joystick Zoom In	Select the current menu option
Joystick Zoom Out	Return to previous menu Cancel number entry
Recall preset 0 – 9	Enter a number (0 – 9) in a menu option. The option must be selected first.

To exit the menu & return to normal operation of the receiver, navigate to the main menu screen & select 'Last Menu'. There is no action necessary to confirm the changes. All changes are stored as they are made in the menus.

ZVR-530 Login

If the ZVR-530 Configuration Protection feature has been enabled you will see the menu below which asks you to enter a PIN. This feature protects the ZVR-530 from any unauthorised configuration.



Using the Numeric keypad of your keyboard enter the PIN for that particular receiver. Failure to enter the correct PIN will result in the error message 'Access Denied' being displayed.

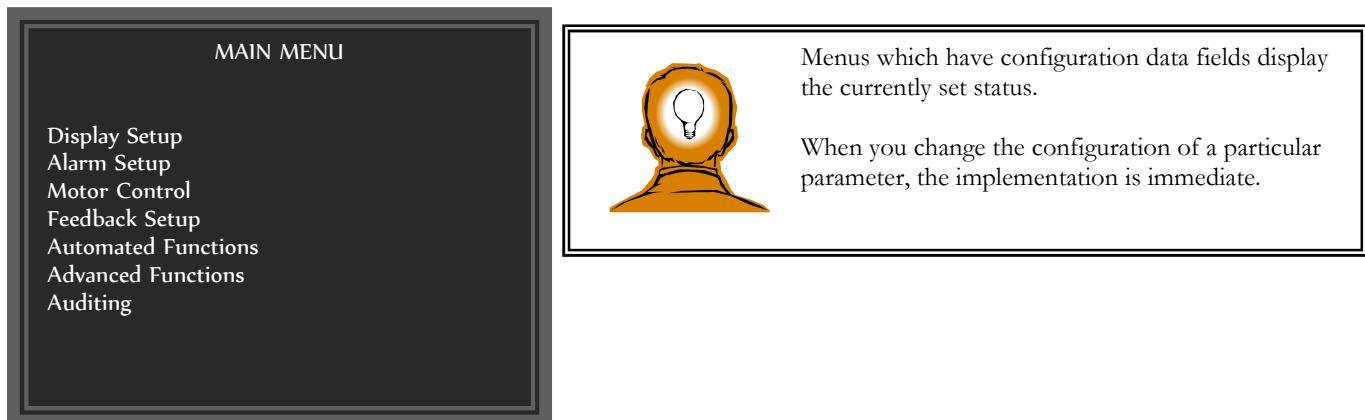
If the ZVR-530 Configuration Protection feature is disabled the first menu you will see is the Main Menu.

Main Menu

The first menu you will see once you have successfully logged in is the Main Menu (shown below). From this menu you can access the rich array of features the ZVR-530 has to offer. Whenever you configure an option the ZVR-530 internal database is updated and the change takes effect immediately. All configuration data is stored in what is commonly referred to as non-volatile memory, which simply means that when power to the ZVR-530 is removed the configuration data is not lost. Typically configured data in the ZVR-530 can be retained for up to ten years without loss!

The latest generation of ZoneVu ZSC products allow the full ZVR-530 database to be downloaded to a PC using Mpower, a PC application which allows you to configure, backup and restore ZoneVu system data. Once downloaded the database can be archived for future use by service and maintenance personnel.

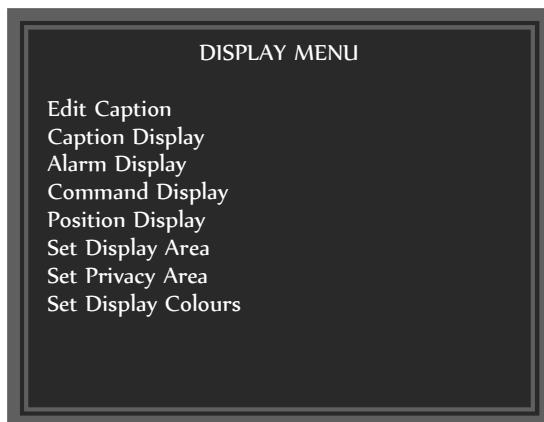
Each option shown in the Main Menu will have a number of sub-menus associated with it. The number of sub-menus will depend on the complexity of the feature to be configured. You can exit ZVR-530 configuration from any menu, you do not have to return to the Main menu.



Display Setup Menu

The Display Menu allows you to configure the On Screen Display (OSD) features of the ZVR-530.

From this sub-menu you have options to program a descriptive camera caption, decide where the caption will be displayed on screen, where alarm information will be displayed and change the appearance of the display.



Options are also provided to display telemetry command confirmation. Also the whole display area can be moved and its size set.

Edit Caption

A descriptive caption can be programmed into the ZVR-530 which is displayed at all times. The caption provides unique identification of the camera signal anywhere in the system. Another benefit of labelling the camera 'at source' is the caption is not susceptible to interference (often seen on the screen as tearing or bouncing captions) due to long cable runs and transmission paths.



The caption can be up to 14 characters long. When you enter the **Edit Caption** menu a cursor will be flashing at the end of the current caption. To delete characters from the caption use the **Clear** button on the keyboard.

- LOWER** – Select this option to toggle between Uppercase and Lowercase.
- SPACE** - Select to insert a space
- DONE** - When you are happy with the caption you have Entered select Done to save your new caption. You Will also be returned to the previous menu.
- QUIT** - Lets you exit the menu without having to configure a New caption.

Caption Display

Alarm Display

Command Display

Position Display

All text displayed by the receiver during normal operation falls into one of these four categories. The appearance of the text in each category can be configured separately using these four identical sub menus.

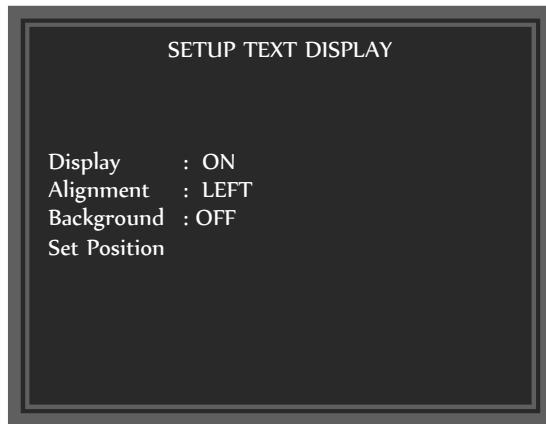
Caption Display controls the fixed caption, which is setup using the **Edit Caption** option above.

Alarm Display controls captions triggered by the alarm inputs, loss of video or approaching endstops.

Command Display controls the display of camera commands as they are received from the ZoneVu controller as confirmation of the operator action.

Position Display controls dynamic captions and preset labels.

Each of these options uses the menu shown below to control the display options of the particular type of text selected.



Each caption type can be switched On or Off using the **Display** option. For example to stop the receiver showing confirmations of any commands received, switch the Command Display to Off.

To position a caption on the screen first choose left or right **Alignment**. Using right alignment on the right side of the display and left on the left will help keep the centre of the screen clear of text.

Switching on the **Background** option displays the text on a shaded block. This helps it to stand out over a variety of scenes.

Selecting **Set Position** will display the menu shown on the right.

Using the navigation keys **Up**, **Down**, **Left** and **Right** the text position can be moved to any part of the screen. There are **16 rows** and **35 columns** available.

The flashing letter shows where the text is aligned to.

Note that text is never split across lines. So positioning right aligned text towards the left of the screen or left aligned text towards the right will result in the position being adjusted to prevent wrapping.

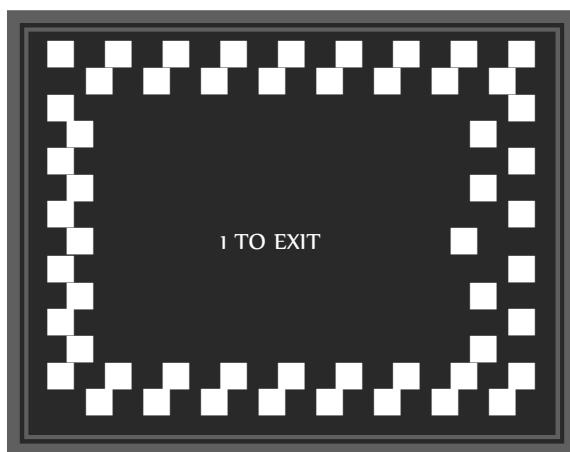
The installer should take care to leave enough space between each type of text to accommodate the maximum length of 14 characters.

Once the text is in the correct position use the **Last Menu** key or **Cancel** key to return.



Set Display Area Set Privacy Area

Set Display / Privacy Area allows the user to configure over what area of the monitor textual or privacy information will be displayed.



The overall size and position of the OSD is indicated by the white chequered pattern.

Using the navigation keys **Down**, **Up**, **Left** and **Right**, the display can be set to the particular position required.

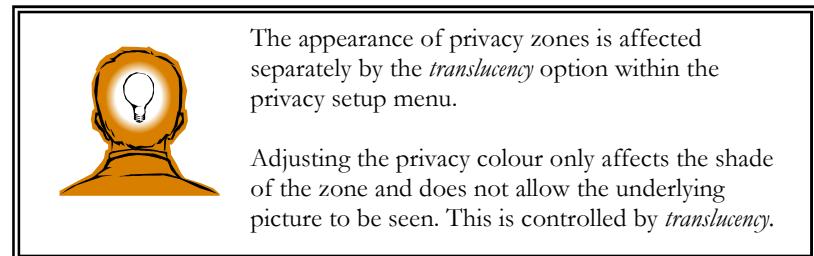
Set Display Colours



Character Colour allows you to adjust the greyscale level of the captioning including all text on the screen.

Character Border adjusts the greyscale level of the fringing around the edges of each character, or the background block if enabled.

Privacy Colour effect only the greyscale level of the privacy zones when displayed.



The appearance of privacy zones is affected separately by the *translucency* option within the privacy setup menu.

Adjusting the privacy colour only affects the shade of the zone and does not allow the underlying picture to be seen. This is controlled by *translucency*.

Each option displays either sample text or privacy zone on the screen and prompts you to 'Pan to change colour'. The left & right keys can also be used.

The current colour setting is also displayed in the range 0 to 15.

Moving left or right increases or decreases the colour setting & updates the sample text / privacy zone in real time.

WARNING: Character Colour & Border affects all text display from the receiver.

Setting both to a shade indistinguishable from the background will result in the inability to view the setup menus.

Alarm Setup Menu

Provided as standard on the ZVR-530 are six contact type alarm inputs, a dedicated Tamper contact type alarm input and a video fail alarm, which automatically detects the loss of video from the camera. Complemented by the powerful alarm management facilities, the ZVR-530 can be configured to provide a formidable array of event driven alarm responses.

Alarm inputs can be independently configured to trigger on contact closure or contact opening. Each alarm input can also be disabled to eliminate false alarms when work is being carried out in the alarmed area. When an alarm occurs the programmed alarm caption is displayed on screen. If more than one alarm is active at any one time the OSD cycles between the alarm captions displaying each one in turn for a period of time.

Event management of alarms is configured from the Action option. Events can be configured on an alarm by alarm basis making it the most powerful receiver we have developed to date. Alarms can be managed locally, centrally or both when the ZVR-530 is connected to a ZSC-500 or ZSC-1000 ZoneVu Site Controller. For example certain alarm inputs may require the action of two cameras to provide full coverage of the incident. In this instance the ZSC-XXXX would be configured to request alarm status from the camera on a regular basis and the ZVR-530 Action option would be set to None. Upon receipt of the alarm the ZSC-XXXX could instruct both cameras to recall a preset or execute a patrol to monitor the area in alarm.

Alternatively the ZVR-530 can be configured to manage the alarm independently without any intervention from the ZoneVu system. The final option, if the ZSC-XXXX has been configured to request alarm status from receivers in the system and the receiver Action option has been configured, is for both local and central management to be performed.

Alarm

- Used to select one of the eight alarms available, Tamper, Alarm 1, Alarm 2, Alarm 3, Alarm 4, Alarm 5, Alarm 6 and Video Loss. Press the Select key to cycle through the and view the settings of each alarm. To configure alarm input settings, first cycle through until the alarm you wish to configure is displayed, then select the option you wish to change.

Trigger State

- Use the **Select** key to set the **Trigger State** to either Closed, Disabled or Open.

Trigger Time

- The Trigger Time parameter is used to reduce the number of false alarms due to 'contact bounce' from the alarm source. The trigger time is important as it validates the alarm source. After the alarm is initially triggered the source is checked again after the Trigger Time. If the alarm is STILL triggered after the Trigger time has elapsed the alarm is accepted as a valid alarm. To set the **Trigger Time** select Trigger Time and enter a time period in the range of 10 to 990ms.

Text

- Each alarm input can be programmed with its own unique text label (14 characters maximum)

Display

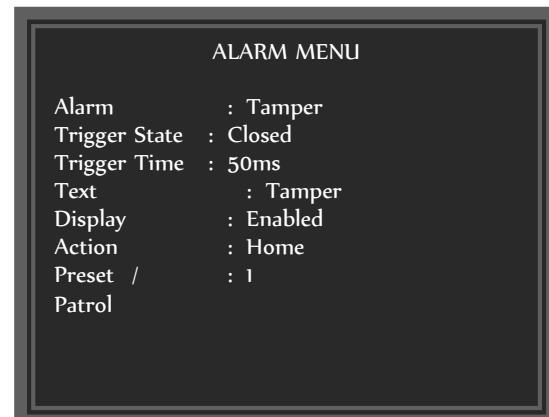
- Using this option you can enable and disable the Alarm Text display. If set to on the alarm Text is displayed when an alarm is activated. Use the **Select** key to Enable and Disable the display of alarm text.

Action

- Action determines what action the ZVR-530 takes for each active alarm input. A number of options are available, **Recall a Preset**, start an **Ordered Patrol**, start a **Random Patrol**, start a **Mimic Patrol**, **No action** or return to **Home** position.

Preset

- If **Action** is set to recall a Preset or a Patrol enter the Preset or Patrol number here. If Action is set to None N/A will be displayed (Not Available). To enter a Preset or Patrol select the option and enter a number (using the **numeric keypad**) which is relevant to the **Action** function.



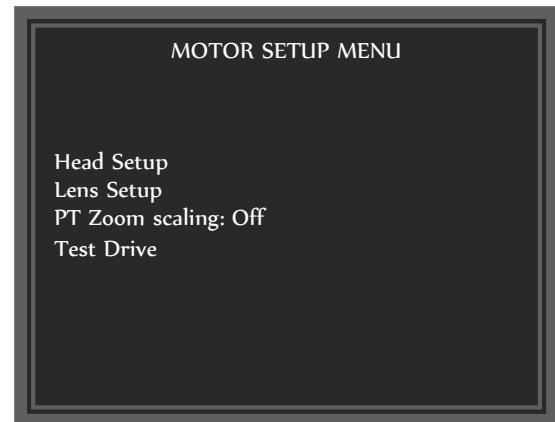
Motor Control Menu

The Motor setup menu provides comprehensive configuration facilities to drive the pan and tilt head and lens. The reasons behind this are that every pan and tilt head, even when of the same type and from the same manufacturer, have different characteristics, due for example to motors being under-wound / over-wound and mechanical differences due to tolerances in manufacture. The characteristics of the head will also change over time, once the head has been run, for instance the gearbox will become looser. To address these issues the ZVR-530 is equipped with an array of parameters, which can be adjusted to ensure optimum performance is achieved and maintainable over a period of time. In general, our experience has shown that lenses do not suffer to the same degree from this issue.

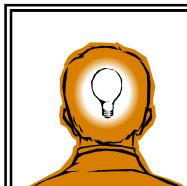
The ZVR-530 incorporates proportional variable speed control (PWM technology) to drive the pan, tilt, zoom and focus motors. Before connecting the pan and tilt head and lens to the ZVR-530 confirm they are compatible with PWM drives. Manual iris are often galvonomic in their operation and cannot be driven by PWM. The ZVR-530 therefore incorporates a linear iris drive which provides dual proportional speed control for this function.

There are two separate submenu's used to setup the motor, one is to configure head settings(Pan, Tilt Up, Tilt Down), the other is used to configure Lens settings(Focus, Zoom). Most of the settings are the same in each menu, therefore the functionality is not repeated in the manual descriptions.

You will notice when browsing the Head Setup menu below that there are separate options for tilt down and tilt up. Although probably obvious this is because of gravity. When tilting down gravity is helping to accelerate the head, when tilting up gravity is working against us making the head heavier to drive. We need to define therefore different settings for both tilt up and tilt down. This is the only axis which requires independent settings.



Zoom dependent Pan and Tilt Scaling – Options of Off, Low, Medium and High. This feature reduces the pan and tilt speed of the head when the lens is zoomed in. The implementation of the feature is such that the speed change is gradual beyond a certain point in the zoom range and even at the highest zoom level, the speed is still variable. Low scaling is suitable for lenses with low magnification whilst the highest setting is aimed at lenses with a high magnification.

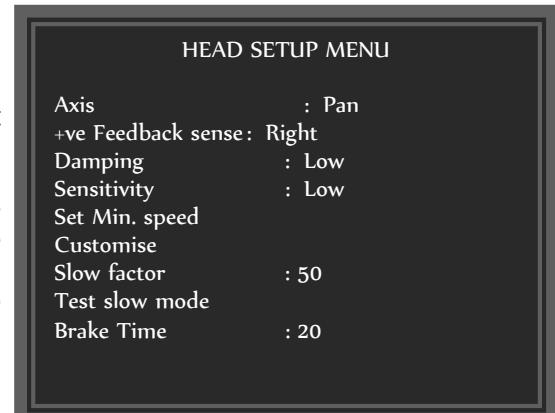


NOTE! Feedback directions must be correctly configured and a complete 3D calibration must be done before this feature will work. To get maximum benefit from this feature, it is advisable to set the minimum speed correctly.

Axis - Axis refers to Pan, Tilt down, Tilt up, Zoom and Focus axis each of which can be configured to suit a particular head and lens. As you cycle through each axis using the **Select** key the current configuration of each axis is displayed.

+ve Feedback sense - This option allows the polarity of the head to be reversed with respect to joystick movement. E.G. if you find that the head moves left when you move the joystick right you can change this here. Use the **Select** key to set the configuration you require. This also applies to the lens.

Damping - This feature controls the deceleration of the camera head, by stopping the head slowly over a pre-defined distance rather than suddenly stopping the head. This facility helps to reduce wear and tear of the head and prevent joystick abuse. The settings available are **Low**, **Medium** and **High**. Whilst this feature is also available to lens functions it is not often required.



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Sensitivity - Some heads are more sensitive than others over the full drive voltage range. This option provides three preset settings of **Low**, **Medium** and **High**. Choose the setting which works best with your head. The lens can also be configured.

Lens Voltage – This feature has been implemented to give finer control over a range of industry standard Lenses, There are two settings to choose from, **High Voltage** or **Low Voltage**.

Brake Time – This feature determines how long the internal brakes are left on, larger heads may take longer to stop and therefore the brake time needs to be longer. The range of times is from 0-100, with 0 being no brakes and 100 correlating to 1000ms, the default value is 20(200ms).

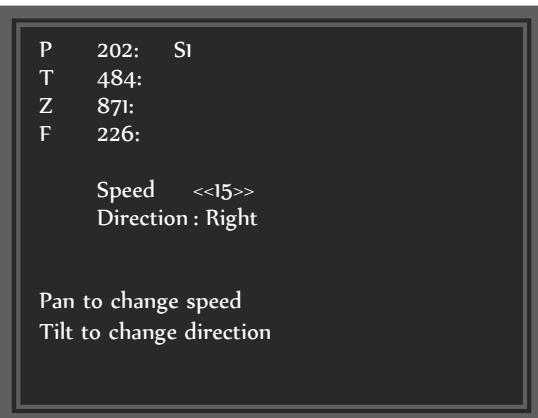
LENS SETUP MENU

Axis	:	Zoom
+ve Feedback sense:	Right	
Lens Voltage	:	High
Damping	:	Low
Sensitivity	:	Low
Set Min. speed		
Customise		

Setting the Minimum Speed

Set min. speed

- The minimum speed of the head is defined as the speed that the head or lens will pan and tilt or zoom in or out at without stalling. Each axis can be set separately including the lens. This is an important option which affects the controllability of the camera head. Time therefore, should be spent on getting the correct setup.



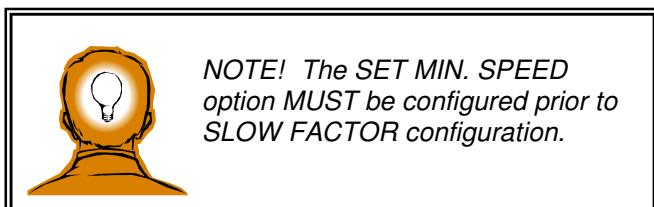
When selected the menu to the left will be displayed and the head will be moving in the direction shown. The options available when configuring the minimum pan speed are:

Pan left to decrease the speed the head is traveling.
Pan right to increase the speed the head is traveling.
Tilt either up or down to alter the direction the head is panning.

What we are trying to achieve through this procedure is to find the minimum speed the head will travel at without stopping (stalling). We often find that heads have 'tight spots' in their gearing when new which will force the head to stall and stop if the minimum speed is set too low.

The procedure for setting the minimum speed is relatively straightforward. First reduce the speed of head (pan left) until the head stalls and stops. Now increase the speed until the head starts to move. Once the head is moving check the full arc of the head to ensure the minimum speed you have set is high enough to overcome any tight spots. As the head moves you should change direction often as the speed required to overcome initial inertia is different to a head in motion. To return to the previous menu use the **Last Menu** key.

The display at the top of the screen "P xxxx, T xxxx etc" shows the current positions being read for Pan, Tilt, Zoom & Focus. These can give an extra indication of when movement has stalled, particularly while focusing the lens.



Test Drive the Head

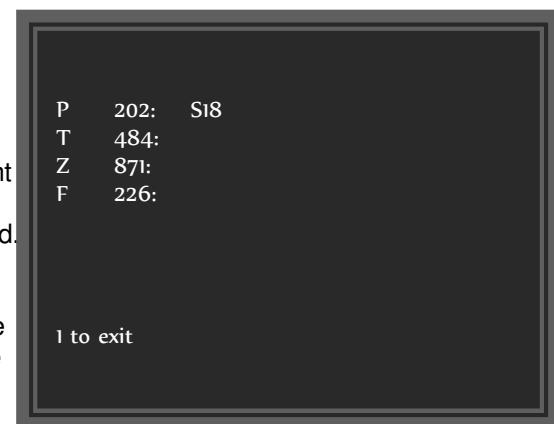
Test drive

- The test drive facility allows us to check the effect of the parameters as you change them without having to leave ZVR-530 configuration.

When we select **Test drive** the menu to the right is displayed. We are now able to control the camera as we would normally from the keyboard.

The numeric values displayed on-screen relate directly to the analogue values monitored on the feedback port from the P&T head and lens. The **P,T,Z,F** are abbreviations for the functions Pan, Tilt, Zoom and Focus. As we control each function the values should change, assuming the head and lens have been fitted with feedback capability. It also serves as a powerful diagnostics tool as it can be used to check if head or lens potentiometers are serviceable or not.

You should also notice displayed as you control each function, **Sn** which is the current speed being driven at. If the joystick you are using is proportional, the speed should change in sympathy with the Degree of joystick movement applied. You can quickly return to the set-up menu at any time by pressing the **1** key on the numeric keypad.



Configuring the Slow Speed Mode

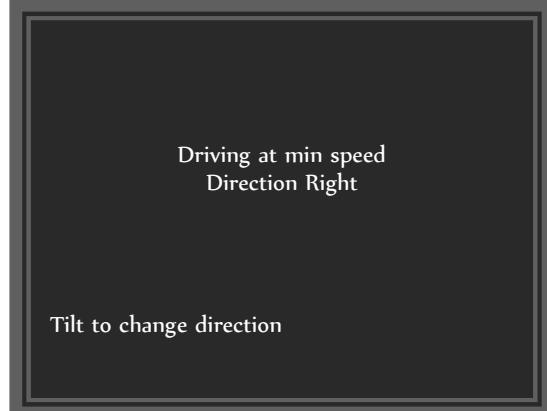
Slow factor

- Although pan and tilt heads are normally specified to have a minimum speed of approximately 1/10th their maximum speed it is possible to drive the head much slower. The slow factor option can be applied to reduce the minimum speed of the head to below that which is specified. There is no hard and fast rule when configuring the slow speed as each head will have its own characteristics. For maximum flexibility the ZVR-530 slow factor can be adjusted over a 100% scale. To configure this option select and enter a number in the range 1 –100. Now test the slow speed performance using the '**Test slow mode**' facility. Repeat this procedure until the desired performance is achieved.

Test slow mode

- Use this facility to test the slow speed performance of the head. Used in conjunction with the **Slow Factor** configuration option.

To exit the **Test slow mode** Menu shown right, select **Last Menu**.

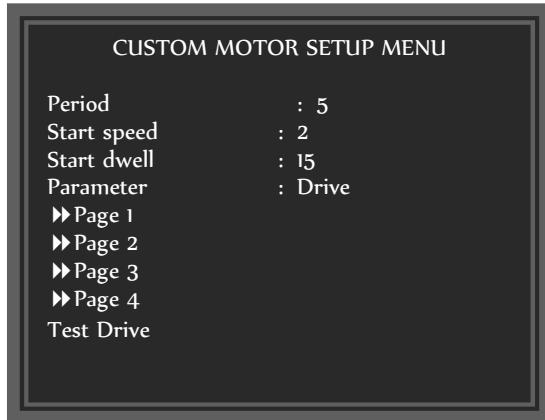


Customising the Motor Drives

Customise

- Normally the preset configuration options available in Motor Setup are sufficient to provide an acceptable level of performance with most pan and tilt heads and lenses. However if you are unable to achieve the required performance from the preset settings available you can totally configure the head parameters yourself using the **Customise** option. Configuring the head in this way is no trivial

task though and should only be attempted by an accomplished CCTV engineer. If you do get into a total mess using the Customise option you can always Load Factory Defaults!



Before you start to use the **Custom Motor Setup Menu** you need to understand how it works and how to navigate it.

The first thing to understand is the function you are configuring, Pan, Tilt, Zoom or Focus. Selection of the function you wish to configure is made in the Motor Setup menu. To go back to this menu use the **Last Menu** key.

The next choice you have to make is the **Parameter** you want to configure. There are three; **Drive**, **Acceleration Dwell** and **Deceleration Dwell**. Use the **Select** key to cycle through them. associated with each of the three parameters are four pages of configuration tables relating to the 32 standard drive speeds.

Period - Period is a global factor, which is applied to all three of the parameters. It is factored percentage value that can be set between 1 – 100%. Typically for a light head it should be set to a low value. For a heavier head the value should be set accordingly higher. Apply similar principles to the lens.

Start speed - Physics tells us that it takes more effort to get an object moving than it does to keep it moving which is what this parameter is all about, the minimum speed required to get the function moving. Like Period it is also a global parameter. Set the value between 1 – 100.

Start dwell - Use in conjunction with the **Start Speed** parameter to complete the settings to get the head or lens moving. whilst Start speed sets the drive level, the Start dwell parameter sets how long the initial start speed will be applied for. Set the value between 1- 250.

Parameter - Use the **Select** key to cycle through Drive, Acceleration dwell and Deceleration dwell.

Drive - Configure as a percentage of the maximum drive level to be applied. Range 1 – 100%.

Accel. Dwell - Range 0 – 15. This parameter acts directly on the PWM drive to set the acceleration rate of the motor.

Decel. Dwell - Range 0 – 15. This parameter acts directly on the PWM drive to set the deceleration rate of the motor.

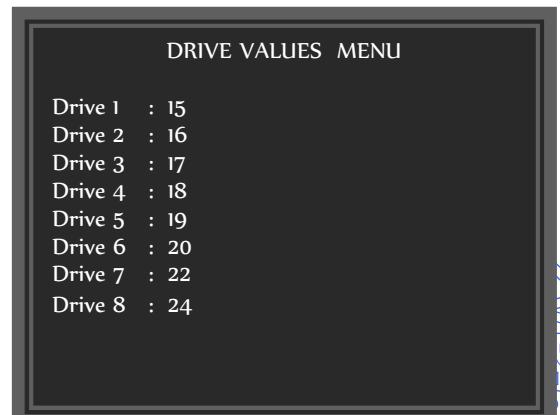
>> Page 1 - Page 1 of the configuration tables for speeds 1 – 8.
>> Page 2 - Page 2 of the configuration tables for speeds 9 – 16.
>> Page 3 - Page 3 of the configuration tables for speeds 17 – 24.
>> Page 4 - Page 4 of the configuration tables for speeds 25 – 32.

Use the **Select** key to display the desired page.

Setting the Drive Level

Press **Select** key and using the numeric keypad enter a value in the range 1 – 100.

To return to the Custom Motor Setup menu use the **Last Menu** key.



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Setting the Acceleration Values

Press **Select** key and using the numeric keypad enter a value in the range 0 -15. To return to the Custom Motor Setup menu use the Last Menu key.

ACCEL. VALUES MENU

Dwell 1 : 15
Dwell 2 : 16
Dwell 3 : 17
Dwell 4 : 18
Dwell 5 : 19
Dwell 6 : 20
Dwell 7 : 22
Dwell 8 : 24

Setting the Deceleration Levels

Press Select key and using the numeric keypad enter a value in the range 0 - 15.

To return to the Custom Motor Setup menu use the Last Menu key.

DECEL. VALUES MENU

Dwell 1 : 15
Dwell 2 : 16
Dwell 3 : 17
Dwell 4 : 18
Dwell 5 : 19
Dwell 6 : 20
Dwell 7 : 22
Dwell 8 : 24

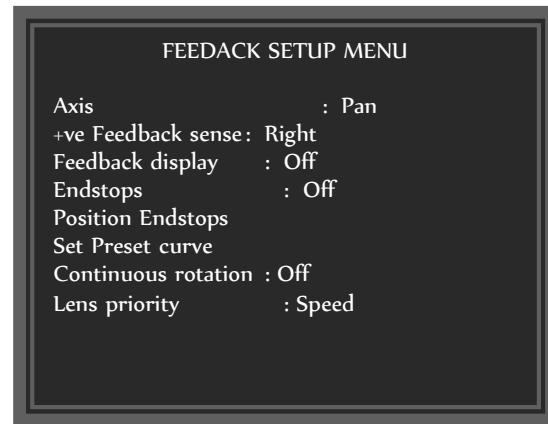


Note! Any Custom changes will be reflected by the Damping and Sensitivity status which will display Custom when you return to the Motor Setup menu. If you do not want to retain your custom settings for Drive, Accel. Level and Decel. Level you can use the Select key to reload the preset configuration options for Damping and Sensitivity which will overwrite your custom settings in the four pages of configuration tables. Start speed and Start dwell are left as custom configured.

Feedback Setup Menu

Feedback refers to the potentiometers or similar devices fitted to Pan and Tilt heads and Lenses that give the head preset capability. The Voltage feedback is processed and mapped by the ZVR-530 to provide 64 preset positions of PTZF.

The Feedback Setup menu has various parameters, which require configuring before you can use the advanced automated functions the ZVR-530 offers.



Axis : There are four feedback axis to configure pan, tilt, zoom and focus. Use the Select key to cycle Through and choose one.

+ve Feedback sense : With the Feedback display set to on check and change if necessary the feedback sense until it its value increases when the function it is set is operated. E.G. If it is set to right the feedback display, (if the +ve feedback sense is set correctly) will increase in value as you pan right and decrease in value as you pan left.

Feedback display : Feedback display is the numeric values displayed on-screen which relate directly to the analogue values monitored on the feedback port from the P&T head and lens. The P,T,Z,F are abbreviations for the functions Pan, Tilt, Zoom and Focus. As we control each function the values should change, assuming the head and lens have been fitted with feedback capability. It also serves as a powerful diagnostics tool as it can be used to check if head or lens potentiometers are serviceable or not. This option allows you to turn the feedback display on and off.

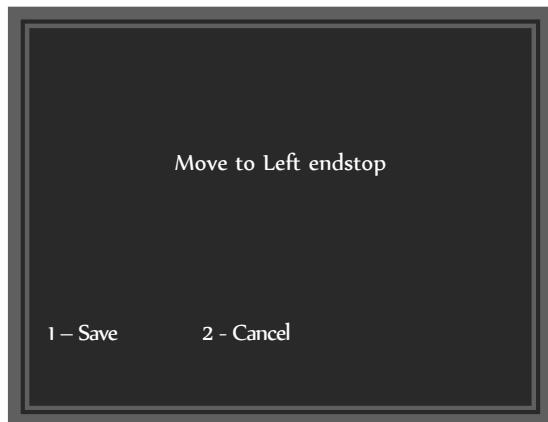
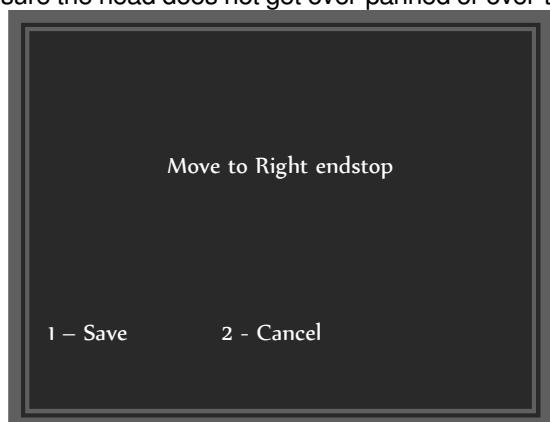
Continuous rotation : Pan and Tilt heads generally come in two flavours, those that can be panned continuously I.E. through 360deg. and those that can't. Those that can't employ endstops to limit the pan travel to around 330 deg. Once this limit has been reached the head has to be panned in the opposite direction. The main reason we have this setting is twofold. Firstly, continuous rotation heads often have a dead zone where the potentiometer goes from maximum reading back to minimum reading and the receiver has to know this so as not to interpret it as a faulty pot. Secondly when a recall preset command is received there are always two routes to acquiring it, a long route and a short route. A non-continuous rotation head will always have to take the longest route but with a continuous rotation head we can and do take the shortest route as preset recalls are often part of alarm events.

Lens priority : When driving to preset positions the lens speed can be set in one of two ways. Choose **speed** to drive both Zoom and Focus simultaneously till the position is acquired. Choose **accuracy** to pause either Zoom or Focus drive when close to the preset whilst the other is more accurately positioned. E.g. Zoom & Focus are initially driven together towards the preset. As the Zoom nears its position, the Focus stops until the Zoom has reached its final point. Focusing is then completed.

Endstops

Non-continuous rotation heads incorporate mechanical endstops to ensure the head does not get over-panned or over-tilted. They are also often set by the installer to limit the pan travel when attached, for instance to a wall where you would only have access to 180 deg. of movement. Setting the heads requires access to the camera head, which is often not that accessible. A more modern solution is to use the on-board electronic endstops that the ZVR-530 provides. By setting the mechanical endstops to their maximum any electronic endstop within this window can then be setup using the ZVR-530 endstop menu options. Endstops can be set for pan and tilt.

Endstops - Set this option to on to allow the ZVR-530 to manage endstops.

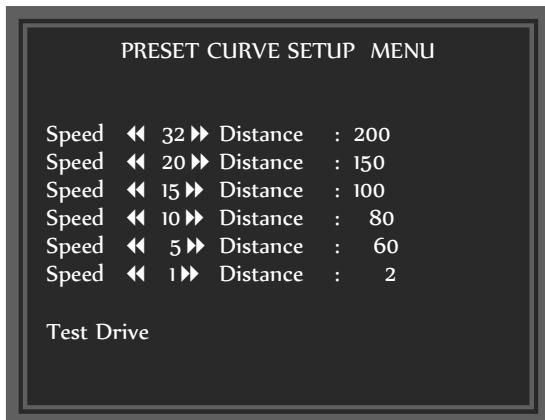


To set endstops managed by the ZVR-530 first select the **axis**, either pan or tilt. Next set the **Endstops** option to on. Finally select the **Position** endstops option and follow the on screen options. Here we see the pan endstops being set.

Finish by saving the endstop settings.

Preset Curve

The preset curve menu options allow you to tailor the ZVR-530 to a heads PTZF preset characteristics. There are many different types of P&T head and lens now available from different manufacturers. Pan and tilt heads are also available with different speed ranges. These factors make it imperative that parameters, which can affect overall preset accuracy, can be adjusted for optimum performance. Select 'Set preset curve' from the options available in 'Feedback Setup Menu'



The **Preset Curve Menu**, shown left has two parameters which can be adjusted, **Speed** and **Distance**. Speed relates to the approach speed of the head or lens with respect to the distance from the preset position the head or lens is trying to acquire. When entering values you should be working from the top of the table when the head is furthest from the preset position, to the bottom of the table where the head is closest to the preset position. Therefore, with that in mind the speed should be decreasing as the preset position is neared, as represented by the distance.

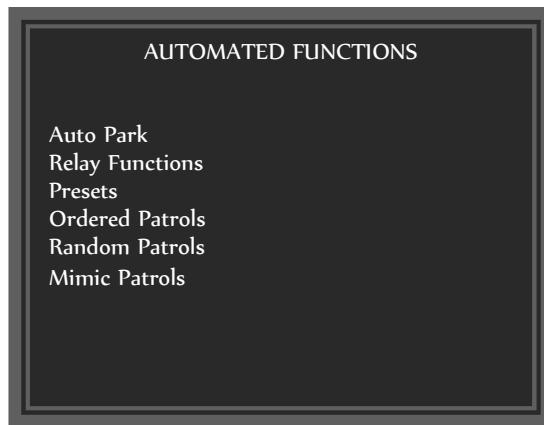
Distance - To change the distance press **Select** and enter a value in the range 0 –999. Note that due to differences in head potentiometer resolutions the Distance value is an empirical value and not a unit of measure.

Speed - The speed is set by first pressing the **Select** key and then using the **Left** and **Right** keys to increase and decrease the speed setting. Finally select the **Cancel** key to leave the Distance setting unchanged.

Test Drive - You can **Test Drive** your settings at any point by selecting the **Test Drive** option from the menu. When you have finished select **1** to return to the Preset Curve Setup menu.



Automated Functions Menu



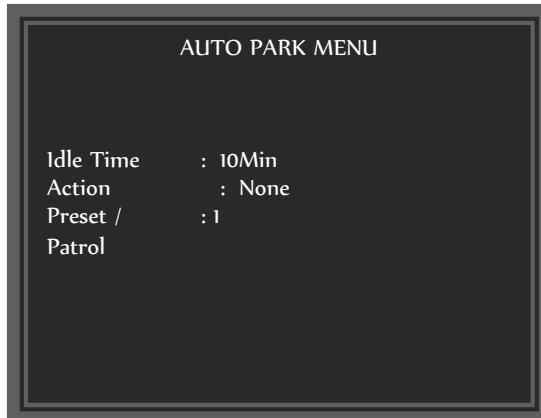
Auto Park

Historically Auto Park returned the camera to a Preset, normally Home, after a pre-defined period of non-use I.E. no camera control signals received. For the ZVR-530, Meyertech have developed an enhanced version now incorporating Patrol options.

Idle Time - Sets the period of Time the receiver must be idle for before the **Action** is executed. To set the Idle Time select the option and enter a time in the range 1 to 99 minutes.

Action - Selecting the option will cycle through the options, shown on the right.

Preset / Patrol - If **Action** is set to recall a Preset or a Patrol enter the Preset or Patrol number here. If Action is set to None, N/A will be displayed (Not Available). To enter a Preset or Patrol select the option and enter a number (using the numeric keypad) which is relevant to the Action function.

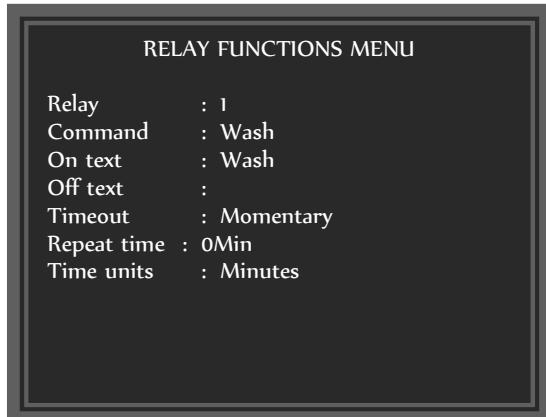


Auto Park options now include, **Ordered Patrols**, **Random Patrols**, **Mimic Patrols** as well as the classic **Preset** and **Home** options.

Relay Functions

The ZVR-530 has at its disposal six relays and a switchable 12V DC PSU, which can be used to power cameras and other off board equipment. The six relays each have different load switching capabilities (refer to ZVR-530 specification) and are all have volt-free contacts. Configuration options allow the user to 'map' each of the relays and the 12V PSU to a particular camera command E.G. map relay 2 to the command Wiper. After mapping the function can be labelled. The operation of each relay can also be configured to set the Timeout and Repeat periods.

This flexible approach to relay use provides the installer with a plethora of interface and control options in the field.

**Relay**

- Used to select one of the six relays and 12V PSU available, Relay 1, Relay 2, Relay 3, Relay 4, Relay 5, Relay 6 and 12V PSU. Press the Select key to cycle through and view the settings for each relay. To configure a Relay's settings, first cycle through until the relay you wish to configure is displayed, then Select the option you wish to change.

Command - Use the **Select** key to cycle through and map the command from the options Wash, Iris mode, Aux 1, Aux 2, Aux 3, Wiper and Lamp

On Text

- Program a text label for the Relay function. Default text describes the default function E.G. command=Wiper; On text=Wiper On. To configure your own label press **Select** to display the alphanumeric on-screen keypad.

Off Text

- Program a text label for the Relay function. Normally this is left blank for momentary functions. Default text describes the default function E.G. command=Wiper; On text=Wiper On. To configure your own label press **Select** to display the alphanumeric on-screen keypad.

Timeout

- The Timeout period is the time the relay is switched on for in 'Time Units'. It can be set to in the range 0 to 250 time units. Set to 0 for momentary action.

Repeat Time

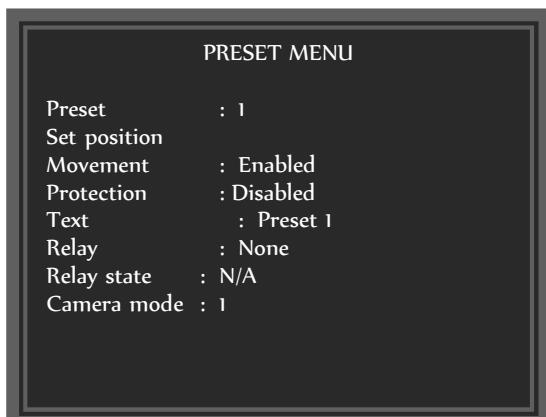
- The repeat time can be set to generate a pulsed output stream. Set to 0 for latched commands.

Time Units

- Time units can be set as either seconds or minutes. Use the **Select** key to toggle between the two.

Preset Functions

Presets allow the camera head and lens to be positioned automatically, PTZF functions, when recalled from a keyboard or by an event. However Meyertech have now extended the flexibility of the Preset function through The addition of preset relay functions and camera mode functions.

**Preset**

- To view and configure a Preset use the **Select** key to select the Preset option and enter a preset in the range 1 to 64 or 0 for home preset

Movement

- Each preset can be Enabled or Disabled using the **Select** key.

Protection

- Enable this option to prevent the preset position from being overwritten by direct command from either a ZoneVu or Fusion controller. Disable to allow direct access to re-program the preset.

Relay

- Using the **Select** key, cycle through and set the option you require from **None, Wash, Iris mode, Aux 1, Aux 2, Aux 3, Wipe or Lamp**.

Relay State

- This option is used to set the configuration of the relay as either off or on using the **Select** key.

Camera Mode

- You can select the camera mode of operation you require for a particular preset position from the options **0, 1, 2, 3 or None**.

Set Position

- Use the **Select** key to display the menu below.



Position the camera using the **keyboard joystick** to set the view you require in pan, tilt, zoom and focus planes.

To save the Preset **press 1** on the numeric keypad. To exit the menu without saving the preset **press 2**.

Text

- You can assign a unique label to each preset by selecting this function. Using the alphanumeric keypad program your caption and select **DONE** to save it.

**Ordered Patrols**

Ordered patrols are a series of presets linked together and executed over a period of time. Patrols can be configured to execute just once or continuously. Any preset can be included in the patrol and the speed between presets and the time period between preset positions can be programmed. You can configure a maximum of ten ordered patrols. The maximum number of presets that can be configured in one patrol is sixteen. A patrol is cancelled whenever it receives a valid camera command.

Patrol

- Select and enter a patrol in the range 1 to 10 to view and configure the settings of each patrol.

Size

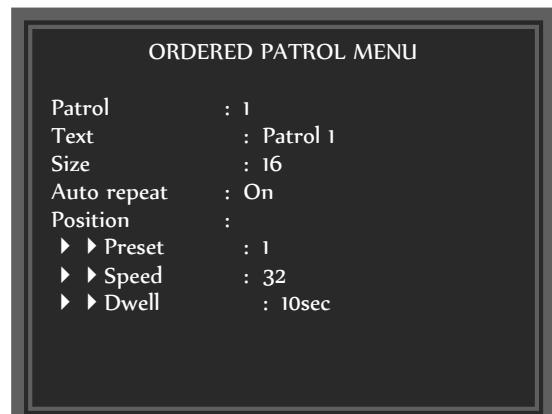
- Set the maximum number of presets in the particular Patrol you are configuring. Range 1 – 16.

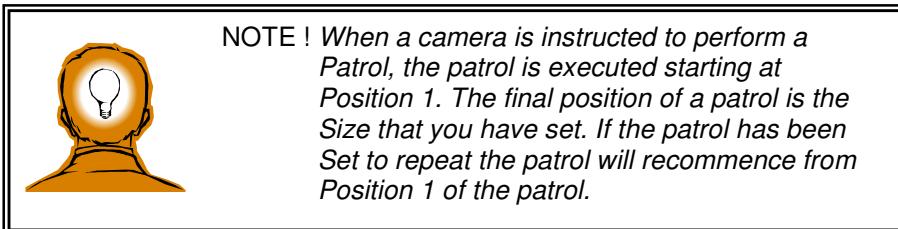
Auto repeat

- If you want the patrol to continuously repeat set this option to on, otherwise set it to off.

Position

- Select the position within the current patrol you are configuring. The position cannot be greater than the size you have set. Use the **Select** key to increment through the positions in each patrol.

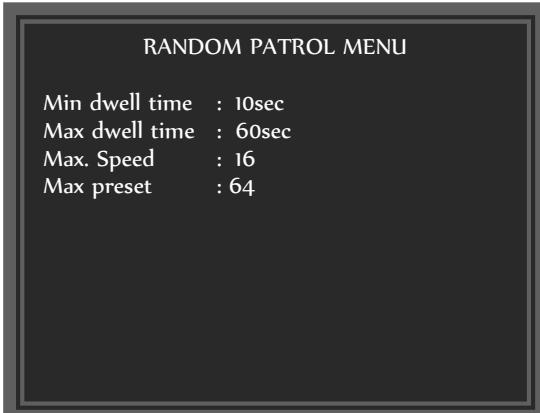


**Text**

- A unique label can be assigned to each patrol by selecting this option. Using the alphanumeric keypad program your caption and select **DONE** to save it.



- **Preset** - For each position in the patrol enter the preset you want the camera to visit. Valid presets are 1 – 64.
- **Speed** - For each preset in the patrol you can set at what pan speed the head will travel at to reach it. Valid speeds are 1 – 32.
- **Dwell** - For each preset in the patrol you can set the period of time the position will be viewed before moving on to the next preset in the patrol. Valid dwell periods are 1 – 9,999 seconds.

Random Patrol

As the name suggests, a random patrol is a patrol which visits preset positions in an undefined order IE it randomly selects which preset it is going to visit next from a group of presets. The period of time it dwells at each preset is also randomly selected. A random patrol has no beginning and no end. Once started it will continue until a camera control command is received.

For a criminal, random patrols are harder to detect than ordered patrols as they are not a repetitive patterns.

Min. dwell time : You can set a time range for the random dwell time by setting minimum and maximum dwell times. Here we can set the minimum parameter in the range 1 to 9,999 seconds via the keyboard numeric keypad.

Max. dwell time : You can set a time range for the random dwell time by setting minimum and maximum dwell times. Here we can set the maximum parameter in the range 1 to 9,999 seconds via the keyboard numeric keypad.

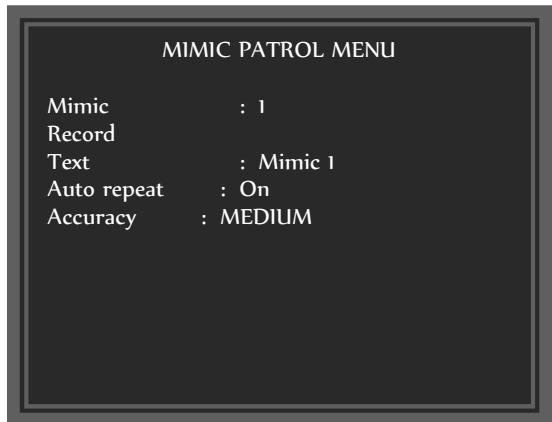
Max. speed : You limit the number of speeds available to the random patrol by configuring this option. Valid speeds are Those in the range of 1 – 32.

Max. preset : You limit the number of presets available for the random patrol to visit by configuring this option. Valid presets are those in the range of 1 – 64.

Mimic Patrols

The Mimic patrol is a new type patrol bringing new levels of performance and flexibility. To the criminal the camera actually looks, as though an operator is manually controlling it, it is that good! Up to two mimic patrols can be configured for the ZVR-530. The maximum duration of each patrol depends on the accuracy required which can be set to low, medium or high. The lower the accuracy required, the longer the duration available. The higher the accuracy required the shorter the duration available.

The low accuracy setting should be used for wide-angle lens shots (zoomed out). The high accuracy setting should be used for narrow angle shots (zoomed in). The medium setting can be used when you have a combination of both wide and narrow angle shots. A patrol is cancelled whenever it receives a valid camera command.



Mimic : Use the **Select** key to cycle through each patrol to view or configure it.

Auto repeat : The patrol will run continuously if set to on. If set to off it will only execute once.

Accuracy : Using the **Select** key set the accuracy required. The options available are **Low**, **Medium** and **High**.

Record : When you are ready to record your mimic patrol select this option and follow the instructions below.

Text : Each patrol can be programmed with a unique text caption. Select and enter your caption from the menu below.



To record your mimic patrol start here.



The first step to configure a new mimic patrol is to move the camera to the position you want the patrol to start.

We recommend that you plan your patrol first and possibly do a few practice runs before attempting to record your new patrol.

When you are happy that you are at the position you want the patrol to commence press **1** on the keyboard keypad to commence recording.

Move the camera manually taking in the particular views you require. You can stop and dwell at any point and it will still be recorded. In fact every PTZF movement is recorded. To stop the recording of a mimic patrol press **1** on the keyboard keypad.



Operating Patrols

Patrols can be initiated from a number of Meyertech operator controls.

Keyboard	Start Random Patrol	Start Patrol 1	Store Patrol 1	Start Patrol >1	Store Patrol > 1
DVK-001	Recall Patrol 1	Recall Patrol 2	Store Patrol 2	Recall Patrol+1	Store Patrol+1
ZVK-002	Recall Patrol 1	Recall Patrol 2	Store Patrol 2	Recall Patrol+1	Store Patrol+1
ZVK-007	Recall Patrol 1	Recall Patrol 2	Store Patrol 2	Not supported	Not supported
ZVK-77	Random Patrol	Recall Patrol 1	Store Patrol 1	Recall Patrol >1	Store Patrol >1
Fusion	Random Patrol	Recall Patrol 1	Store Patrol 1	Recall Patrol > 2	Store Patrol >1

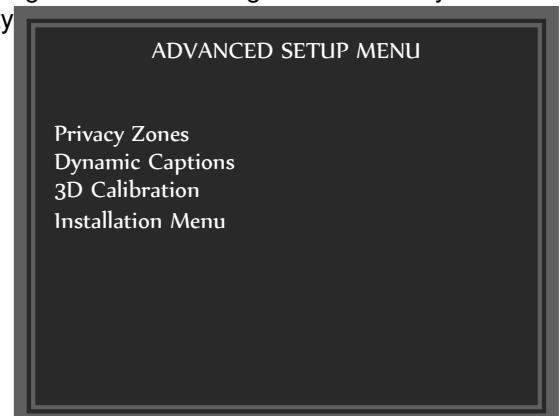
Earlier versions of Meyertech operator controls used a different numbering scheme for ordered and random patrols.

Advanced Functions Menu

The ZVR-530 incorporates a number of advanced features as standard. Dynamic captions, which automatically update as you move the camera head, are relaying information to the operator relating to the scene being viewed. Privacy zones are used to guarantee privacy where cameras have views over private property such as residential areas. They work by 'blanking out' areas of the screen, which are deemed to be private. When the camera travels into an area of the screen protected by a privacy zone the blanking feature is activated making it impossible for the viewer to see into the private area.

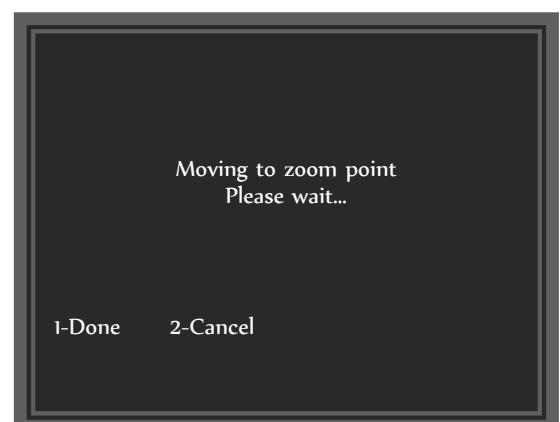
In this section we will learn how to calibrate the head for 3-dimensional dynamic privacy zones and for dynamic captions. We will then cover how to setup privacy zones and configure dynamic captions

The Installation Menu was covered in the section, Camera Head Pre-assembly and Testing.



3D Calibration

Before we can configure any privacy zones or setup dynamic captions, we need to carry out 3D-calibration of the head. 3D calibration only needs to be performed once, not for each privacy zone. 3D-calibration involves marking a number of positions, on-screen for each of three zoom points, zoomed out, zoomed in and the mid-zoom point.



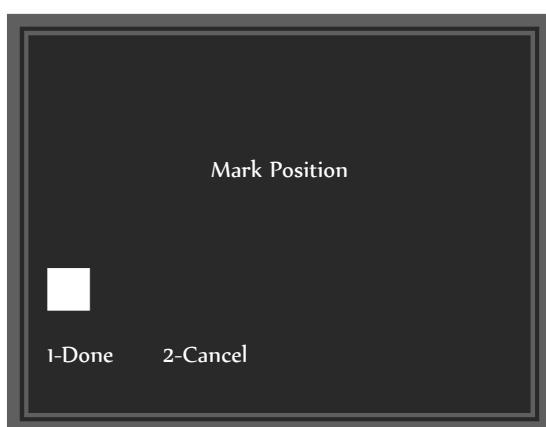
The receiver will automatically clear this screen & move on to the next stage once the lens has been successfully positioned. If it does not clear within a few seconds the lens may not yet be correctly configured. Press 2 and retry once this is resolved. Selecting 'Done' will interrupt the positioning and accept the current lens position, which may lead to inaccurate results.

To perform the calibration simply follow the six steps below.

When prompted to 'Mark Position', move the camera to position the marker over any convenient static object.

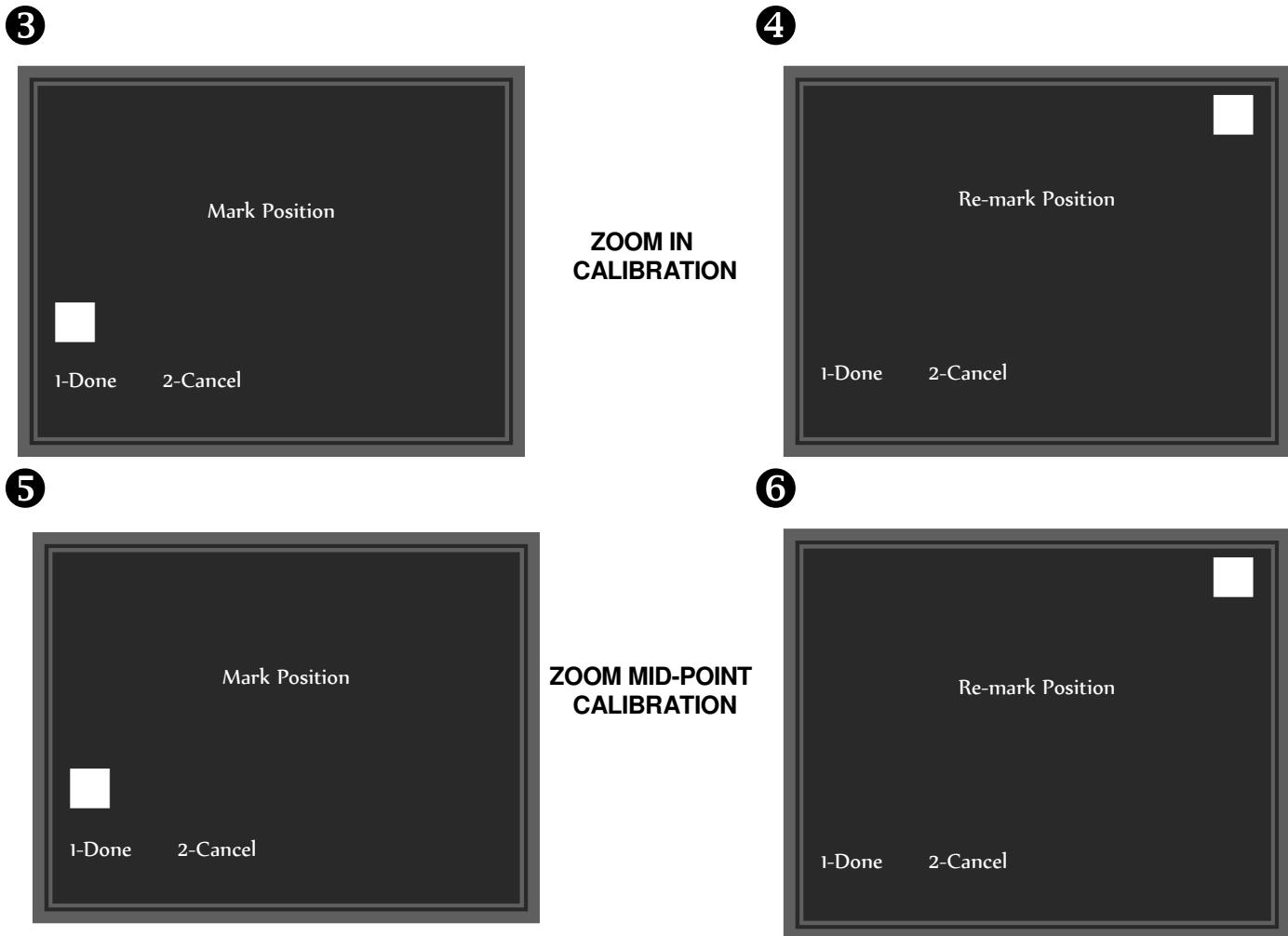
When prompted to 'Re-mark Position', move the camera to re-position the marker over the same object.

1



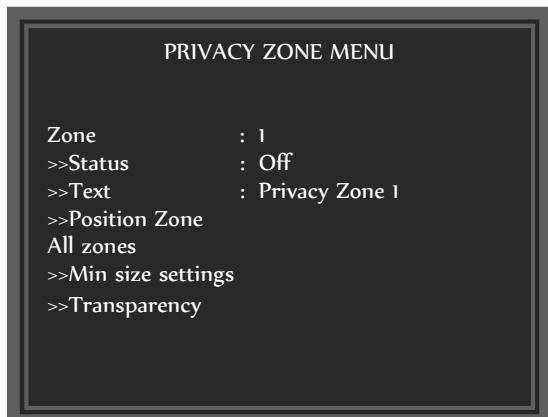
2





Privacy Zones

Up to fifty 3D dynamic privacy zones can be configured on the ZVR-530 from the menu below.



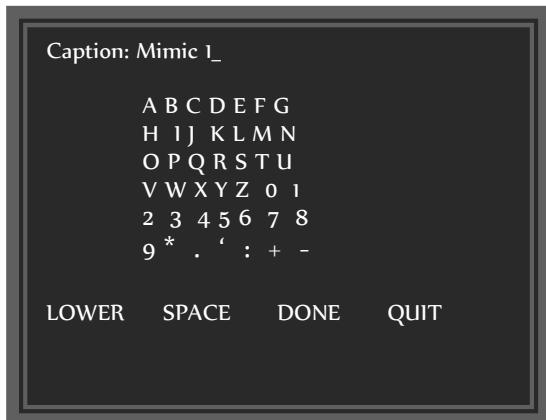
Zone : Using the **numeric keypad** Select and enter a privacy zone in the range 1 to 50 to view and configure the settings of each privacy zone.

Status : The status of each zone can be switched on or off by the **Select** key.

Text : Each privacy zone can be programmed with a unique text caption. Select and enter your caption from the menu below.

Using the **alphanumeric keypad**, program a caption and select **DONE** to save it.

To insert a space, highlight the **SPACE** option and press **Select**.
To switch between uppercase and lowercase, highlight the **LOWER** or **UPPER** option and press **Select**.



Position Zone : To set a privacy zone move the camera to the bottom left corner of the area you wish to make private. To do this use the **keyboard joystick** to position the head using the PTZ commands. Now mark this as the start position by selecting **1** on the numeric keypad. Next, drag the privacy zone diagonally to the top right of the area you want to blank out. Finally, select **1** on the numeric keypad to save the privacy zone. More than one privacy zone can be programmed in a scene.

1 Move camera to start position and mark it



2 Move camera to finish position and mark it.



Min size settings: To control the minimum size of privacy zone.

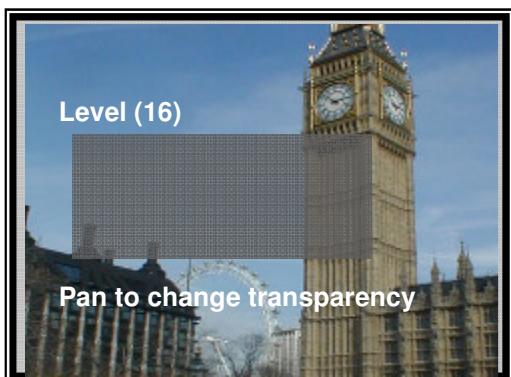
By modifying these options the minimum size of the privacy Zone can be set.

If **Display below minimum** is set to **On** then the privacy zone will always be displayed irrespective of how far zoomed out you are.

If **Display below minimum** is set to **Off** then the privacy zone will disappear if the picture is zoomed out far enough that the minimum height and width restrictions would be exceeded.

PRIVACY ZONE SIZE LIMITS

Minimum Height: 1
Minimum Width: 2
Display below minimum : On

Transparency:

This setting allows privacy zones to be made to have a certain degree of transparency, allowing the underlying scene to be partially visible. The degree of transparency can be configured to fit the requirement.

Adjust the level of the transparency by panning left or right or by pressing the left and right buttons on the keyboard. 100 levels are available, where 1 is fully transparent and 100 fully opaque.

The setting is applied to all privacy zones (i.e. not on a zone by zone basis).

ADDITIONAL NOTES ON CONFIGURING ZVR-530 PRIVACY ZONES**Before You Start**

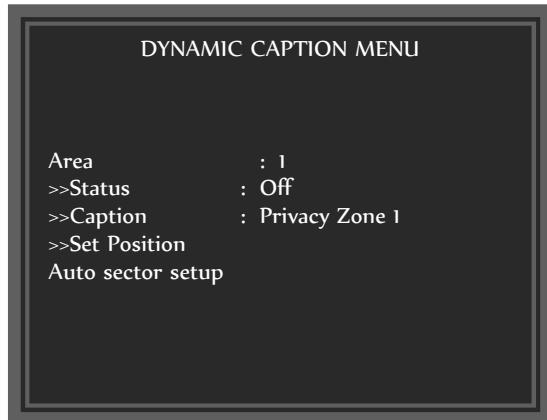
1. Ensure that the parameters +ve Drive Sense (MOTOR SETUP MENU) and +ve Feedback Sense (FEEDBACK SETUP MENU) have been correctly set and checked. Also 3D Calibration of the camera head will be required. Carry out each task in the order below.
2. +ve Drive Sense can be checked and configured from the MOTOR SETUP MENU. In this menu select Test Drive and check for each function that the drive sense is set correctly. E.G. check that when you move the joystick right the camera head actually moves right and not left. Do this for each of the functions Pan, Tilt, Zoom and Focus. If you find a setting which is incorrect change the +ve Drive Sense setting for that function. Do this for each function Pan, Tilt Zoom and Focus.
3. +ve Feedback Sense can be checked and changed from the FEEDBACK SETUP MENU. From this menu switch on the Feedback Display, then check that the feedback values move in the right direction in relation to the +ve Drive Sense setting E.G. if we were checking the Pan Axis and the +ve Drive Sense is set to Right you should see, when we test drive the head (to test drive the head select Set Preset Curve followed by Test Drive), the Pan value increase, not decrease. If it does decrease go back to the FEEDBACK SETUP MENU and change the +ve Feedback Sense to the opposite setting and then re-check it. Do this for each function Pan, Tilt Zoom and Focus.
4. To perform 3D Calibration (ADVANCED SETUP MENU) follow the instructions on the screen to Mark and Re-mark zoom positions. This is performed three times for zoomed in, zoomed out and a mid-zoom position.
5. If you wish to overwrite a privacy zone you will first need to switch its status to 'off'. Once the new zone has been created it will replace the previously stored zone and the new zone will be automatically switched on.

Dynamic Captions

Before attempting to setup Dynamic captions for the first time, ensure that the 3D calibration routine has been performed.

Up to 20 caption zones / sectors may be setup.

- A **sector** is defined by the Pan position only.
- A **zone** is defined by both Pan and Tilt position.

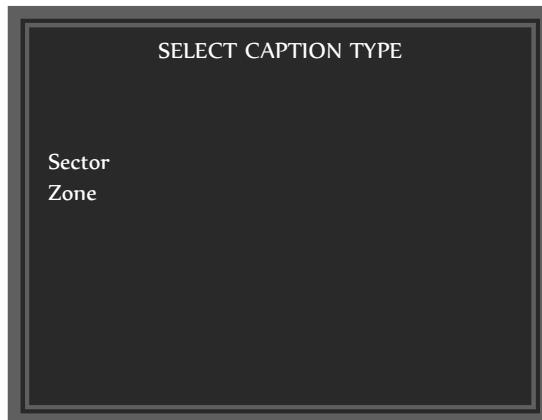


For each area:

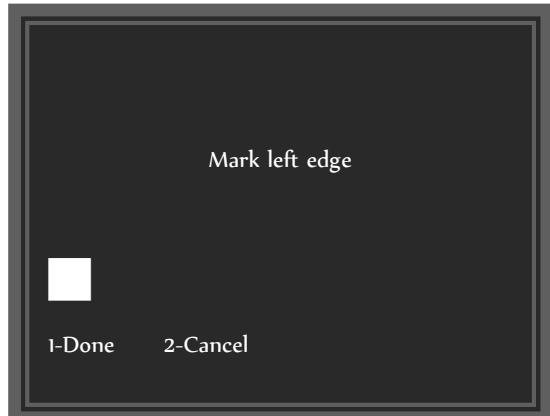
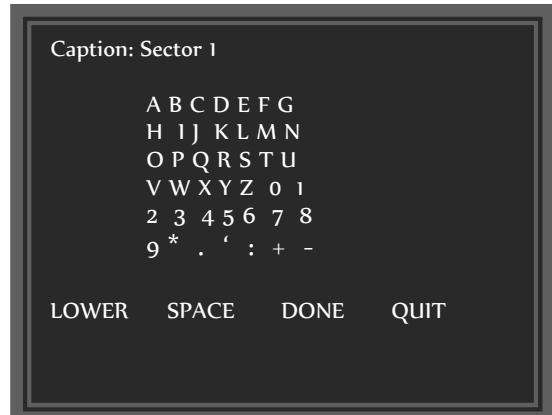
- **Status** - This sector/zone is either ON/OFF
- **Caption** - The caption displayed when viewing area
- **Set Position** - Position the sector/zone.
- Auto sector setup** - Automatically position the sectors equally.

Caption – Selecting the caption option displays the text input screen.

Set Position – Select the type of dynamic caption – zone or sector.



On selecting the caption type the display will switch to mixed mode to allow the definition of the caption area.



Auto sector setup – This allows the automatic distribution of a specified range of sectors over a defined area.



Installation Menu

Selection of this option will take you to the installation menu that can also be selected with the self-test button.



See the section *Camera Head Pre-assembly and Testing* for details.

Extended Functions

Auto Wash/Wipe : Preset 89

The Auto wash and wipe sequence is intended to simplify the operators task on cameras where operation of the washer requires a fixed position.

The position required by the washer is setup by storing preset number 89.

The Auto wash / wipe sequence is started by recalling preset number 89.

- The camera will move to it's designated Wash position
- Once at the position Wash & Wiper relays are started
- Once the Washer has completed, the camera is returned to it's original position

The sequence can be cancelled at any time by recalling **preset number 90**. The camera will return to it's previous position and cancel the washer and wiper if active. Moving the joystick during the sequence will override it, and regain manual control.

Setup

1. The washer position is programmed by selecting 'Store Preset 89' on a keyboard or other control device. It is not accessible within the receiver's menus.
2. The washer relay requires a timeout period to be selected. This controls the time before the camera is returned to it's previous position. In the receiver menu, select 'Automated Functions | Relay Functions'.
3. The wiper relay can similarly be given a timeout period. This will typically be slightly longer than the washer timeout.

Serial Camera Interface

The ZVR-530 supports a serial interface to specified camera types.

The ZVR-530 firmware contains all the drivers for supported cameras, however as the electrical interface to cameras differs, this must be specified at time of order:

4. RS422/485
5. RS232

The range of cameras supported is constantly under development, details of currently supported models can be found in the Meyertech document [ZVR-530 Supported Cameras](#).

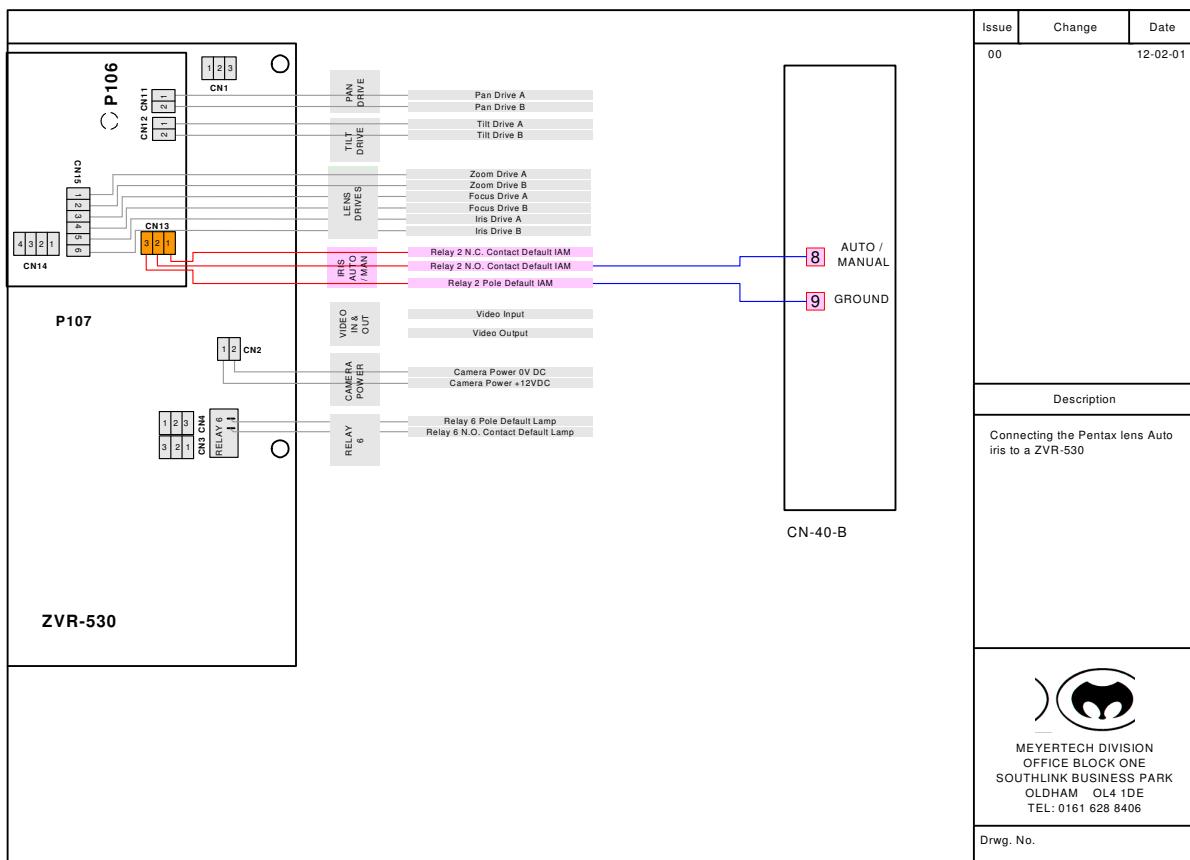
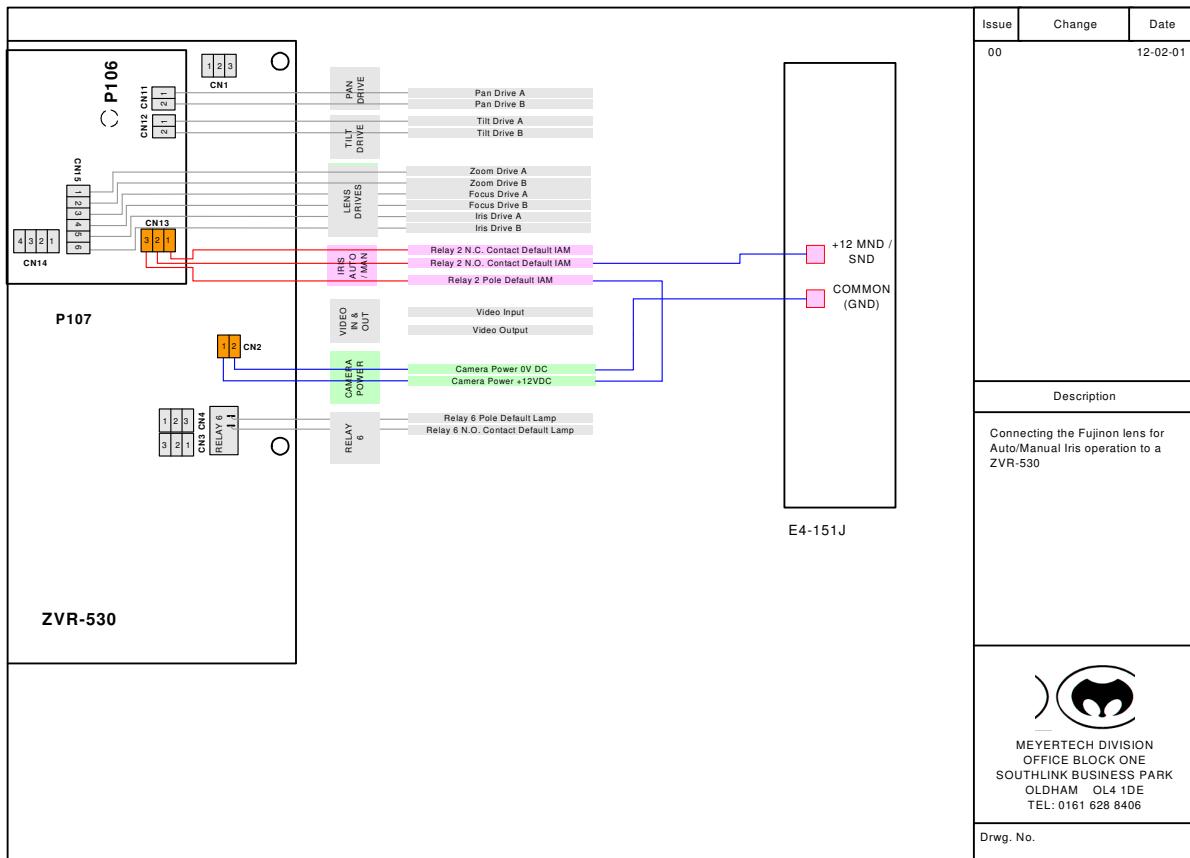
Iris Interface

The ZVR-530 provides a drive output for controlling auto / manual iris.

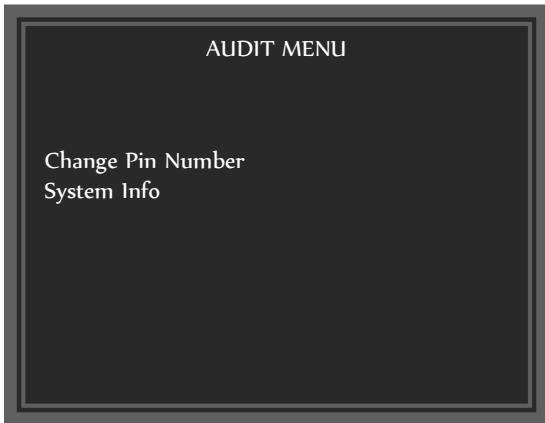
On selecting the Manual Iris command from a suitable control point (keyboard), relay 2 (iris auto / manual) will energise and the keyboard will be able to send manual iris commands.

The drive is a two level drive – 3V and 6V corresponding to slow and fast speed.

Below are the recommended methods of connecting a Pentax or a Fujinon lens to the ZVR-530



Auditing Menu



Change PIN Number

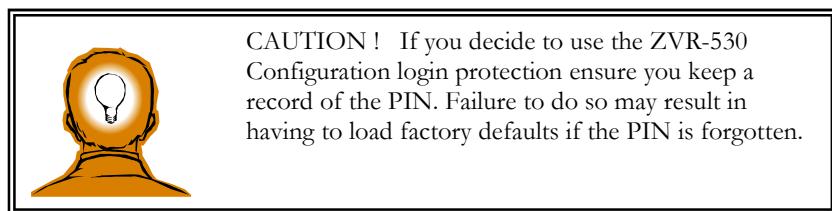
The ZVR-530 can be programmed with a PIN to protect it from unauthorised

Configuration. PIN security is activated whenever a configuration request is received. The operator is then requested to enter a receiver PIN. If the PIN is incorrect access will be denied.

The PIN can be up to six digits long. All ZVR-530's are shipped from the factory with configuration login disabled I.E. PIN set as zero. To enable configuration login enter any new PIN other than zero.

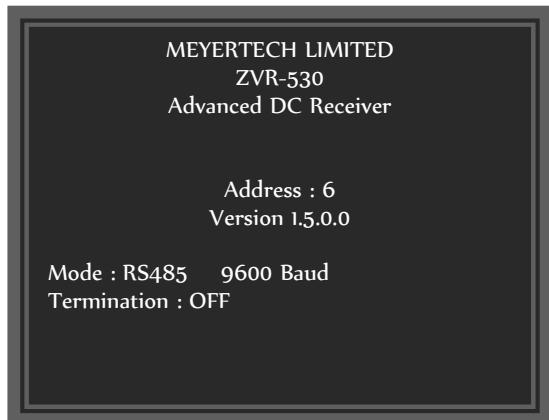
To enter a new PIN Select the option and enter a number up to six digits long using the **numeric keypad**.

Enter PIN code: 8888



System Info.

Selecting the System Info. option displays the following screen giving details of the receiver address, firmware version, and network communications settings.



Approvals and Standards



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EC DECLARATION OF CONFORMITY ACCORDING TO ARTICLE 10 OF COUNCIL DIRECTIVE 89/336/EEC

MEYERTECH LIMITED DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE PRODUCT TO WHICH THIS DECLARATION RELATES, IS IN CONFORMITY WITH THE PROTECTION REQUIREMENTS OF COUNCIL DIRECTIVE 89/336/EEC ON THE APPROXIMATION OF THE LAWS OF THE MEMBER STATES RELATING TO ELECTROMAGNETIC COMPATIBILITY.

THIS DECLARATION OF CONFORMITY IS BASED UPON COMPLIANCE OF THE PRODUCT WITH THE FOLLOWING HARMONIZED STANDARDS.

EN55022 CLASS B

EN50093

PRODUCT ZVR-530 Telemetry Receiver

For MeyerTech Limited

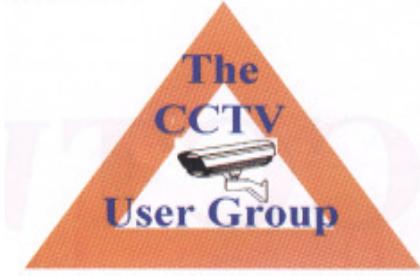
S K MEYERS
Managing Director

ISSUED THIS DAY

22-09-2003



Meyertech Limited is a member of the CCTV Manufacturers and Distributors Association



Meyertech Limited is a member of the CCTV User Group.

Specification

Operating temperature range	0 to +50 deg. C
Enclosure	Universal mounting bracket open frame. ZVR-530 assembly mounted on universal bracket, which can be installed either vertically or horizontally. Universal bracket colour – Gold Also available in IP rated enclosure.
Dimensions	W143mm D155mm H 42mm
Weight	570g including universal bracket
PSU	24V AC +/- 10% 50-60Hz 96VA rated. Quiescent power-up surge 29VA; operating 10VA
ZoneVu Network Port	RS422 / RS485 half duplex or simplex
Serial Integration Port (SIP)	RS232 – RS422 – RS485 – TTL – full duplex
Alarm Inputs	Tamper and six contact type N/O or N/C plus alarm common – Video loss. Sync. monitoring
Diagnostic LED's	+5V and CPU (heartbeat), ZoneVu Network Communications Tx and Rx, Serial Integration Ports 1 – 2 Tx and Rx
OSD	Camera captions – Dynamic text – Privacy zones – Configuration Menus – Alarm captions – command captions – position captions Two columns of 14 characters per column. 16 rows.
Functions Connectors	Miniature Klippon 2-part 2 to 6 way – Relay 6 spade connections direct to relay.
Video Connectors	BNC

Features	Independent Pan Variable speed - Tilt Variable speed - Zoom Variable speed - Focus Variable speed - Iris Variable speed - Slow speed range - Aux 1 to Aux - Self -test - Presets (PTZF) - Patrol Random - Patrol Ordered - Patrol Boundary - Patrol Mimic - Pan and Tilt Softstop - Electronic Pan and Tilt endstops - Privacy Zones - Anti-Tamper alarm - Camera fail alarm - Alarm inputs – contact - Static caption - Dynamic captions - Enhanced diagnostics - Iris Auto-Manual selection - Configuration - menu driven - Configuration - Direct command - Global - On Screen Display – Retrace - Camera configuration management - Auto timeout facilities - Multiple Baud rate support - Re-settable PSU fuse - Zoom sensitive Pan and Tilt control - Local alarm event management - Alarm reporting management - Address range 1 -4096
Video Inputs	1V p-p 75R terminated. PAL CCIR
Video Outputs	1V p-p 75R impedance. PAL CCIR
Pan and Tilt Drive	+24VDC PWM variable speed control
Pan and Tilt Brake	+24VDC
Zoom and Focus	+12VDC and +8VDC (selectable) PWM proportional variable speed control
Iris	Proportional dual speed linear drive +3V and +6VDC
Camera Power	+12VDC +/- 1V 8W maximum
Relay 1	NC or NO volt free contacts 1A @ 24V DC (Max 30V DC / 120V AC)
Relay 2	NC or NO volt free contacts 1A @ 24V DC (Max 30V DC / 120V AC)
Relay 3	NC or NO volt free contacts 1A @ 24V DC (Max 30V DC / 120V AC)
Relay 4	NC or NO volt free contacts 1A @ 24V DC (Max 30V DC / 120V AC)
Relay 5	NC or NO volt free contacts 8A @ 30V DC / 10A @ 120V AC (Max 250V AC / 125V DC)
Relay 6	NO volt free contacts 16A 250VAC 30VDC (option)
Head Feedback Outputs	+5VDC and 0VDC
Head Feedback Inputs	Pan, tilt, zoom and focus. 0 - +5VDC Max.

Factory Settings

Network settings	
Protocol	ZoneVu
Address	1
Mode	RS485
Termination	Off
Baud rate	9600
Serial Camera Interface	None
Pin Number	None

Motor Control	
Sensitivity	Medium
Damping	
Pan & Tilt	Low
Zoom & Focus	None
Brake Time	20
Lens Voltage	High
Feedback Setup	
Positive Feedback sense	
Pan	Right
Tilt	Up
Zoom	Tele
Focus	Near
Endstops	Disabled
Continuous rotation	Off
Lens priority	Speed
PT Zoom Scaling	Off

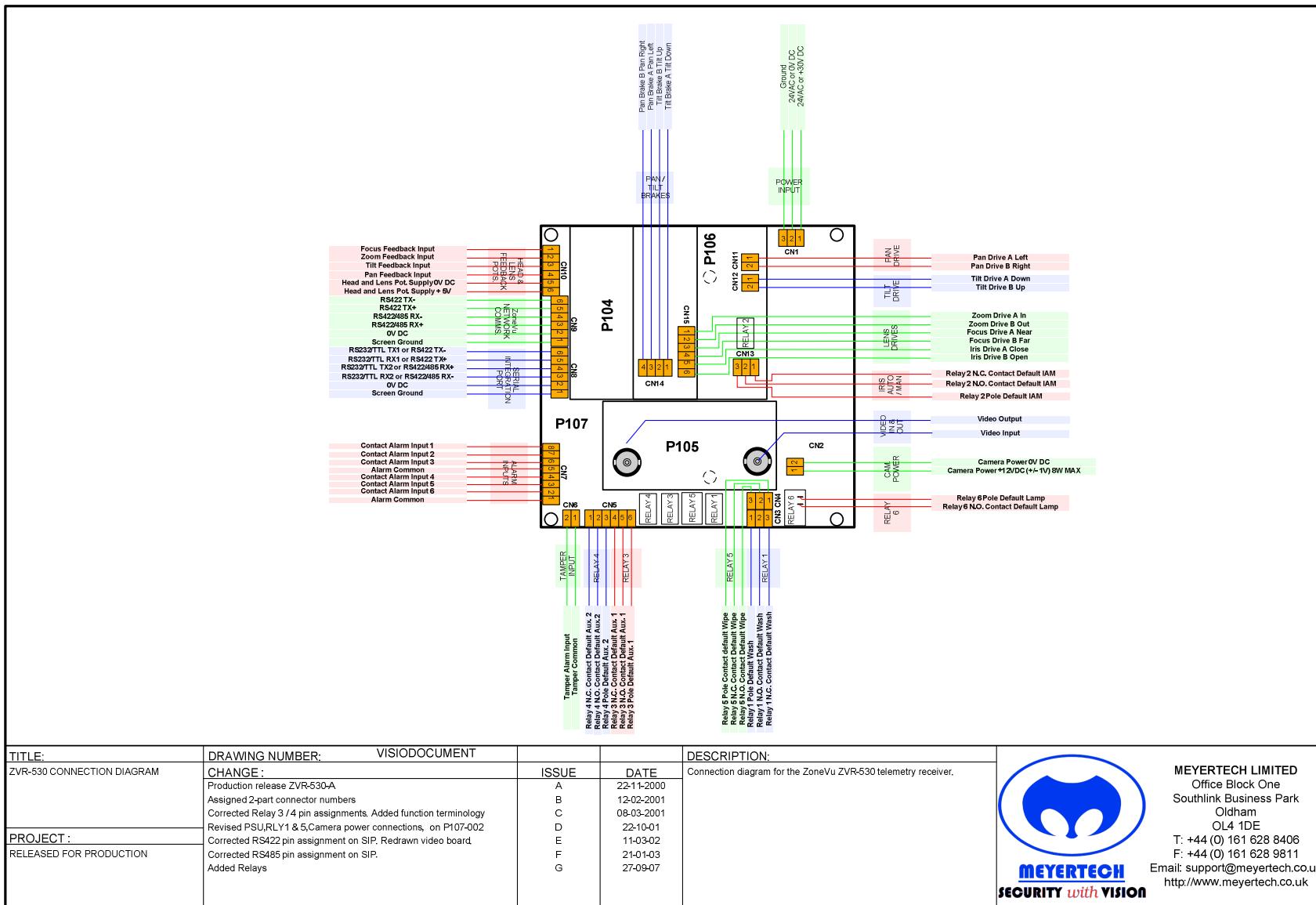
Display – Command text	
Display	enabled
Line	16 (bottom)
Alignment	Right
Background	Off
Display – Position text	
Display	enabled
Line	16 (bottom)
Alignment	Left
Background	Off
Display – Alarm text	
Display	enabled
Line	1 (top)
Alignment	Right
Background	Off
Display – Caption	
Caption	Mtech ZVR-530
Display	enabled
Line	1 (top)
Alignment	Left
Background	Off

Alarms – 1 to 6	
Trigger state	Closed
Trigger time	50ms
Text	Alarm x
Display	Enabled
Action	Preset x
Alarms – Video loss	
Trigger state	Enabled
Trigger time	50ms
Text	Camera fail
Display	Enabled
Action	None
Alarms – Tamper	
Trigger state	Closed
Trigger time	50ms
Text	Tamper
Display	Enabled
Action	Home
Auto Park	
Action	None

Relay 1	
Command	Wash
On text	Wash
Off text	
Timeout	Momentary
Repeat time	0
Relay 2	
Command	Iris mode
On text	Iris Manual
Off text	Iris Auto
Timeout	0
Repeat time	0
Relay 3	
Command	Auxiliary 1
On text	Aux 1 On
Off text	Aux 1 Off
Timeout	0
Repeat time	0
Relay 4	
Command	Auxiliary 2
On text	Aux 2
Off text	
Timeout	Momentary
Repeat time	0
Relay 5	
Command	Wiper
On text	Wiper On
Off text	Wiper Off
Timeout	0
Repeat time	0
Relay 6	
Command	Lamp
On text	Lamp On

Off text	Lamp Off
Timeout	0
Repeat time	0
12V Power	
Command	Auxiliary 3
On text	Camera On
Off text	Camera Off
Timeout	0
Repeat time	0
Presets – All	
Position	none
Text	Preset x
Protection	Disabled
Relay command	none
Camera mode	none
Ordered Patrols – All	
Text	Patrol x
Size	16
Auto repeat	On
Preset	1 – 16
Speed	32
Dwell	10 seconds
Random patrol	
Min dwell time	10 seconds
Max dwell time	60 seconds
speed	16
Max. preset	64
Mimic patrols – All	
Text	Mimic x
Auto repeat	Off
Accuracy	Medium
Privacy zones – 1 to 9	
Status	disabled
Text	Privacy Zone x
Privacy zones – 10 to 50	
Status	disabled
Text	Privacy No. x
Privacy zones - All	
Minimum Height	1
Minimum Width	2
Display below minimum	Off
Transparency	100 (opaque)

Connection Diagram



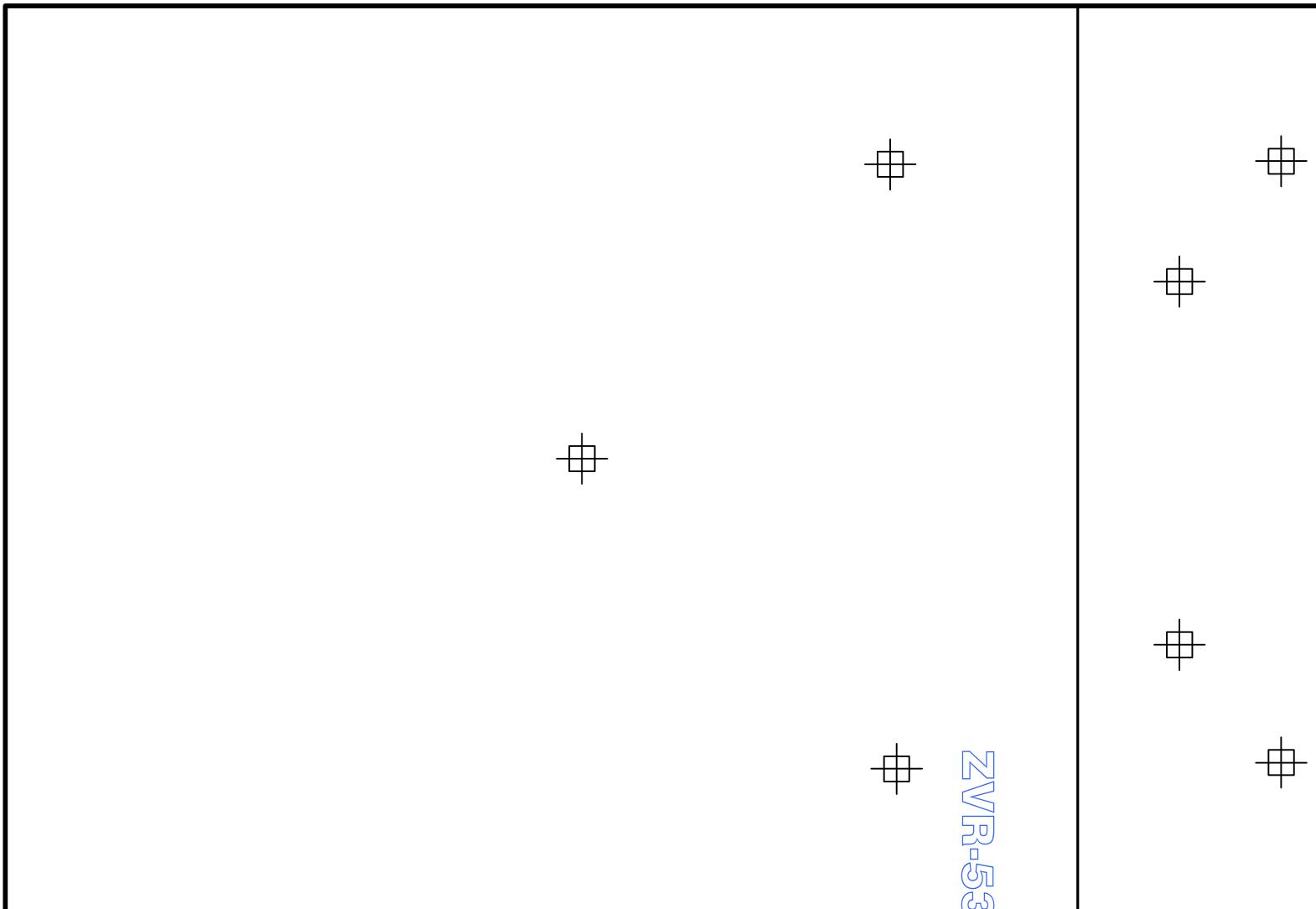
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Mounting Template

Use this template to mark and drill the mounting holes for the universal mounting bracket. The bracket can be mounted horizontally; drill the three holes on the left side of the template, or vertically, drill the four holes on the right side of the template.

The mounting screws provided are type M4 that require a 4.5mm clearance hole.



Servicing and Support

Servicing

The ZVR-530 requires no Planned Preventive Maintenance periods (PPM's) as it is mainly solid state in design. However, the performance of the ZVR-530 may change over time due to changes in the equipment it is connected to. An example of this is a pan and tilt head. Over a period of time, once the mechanics have been 'run-in' it is likely that tight spots in the gears will disappear. The result of this is that the minimum speed characteristics of the head will change which could affect preset accuracy. Therefore, Meyertech recommend checking the operation of functions, which drive mechanical components in accordance with normal PPM periods.

The ZVR-530 contains no serviceable parts and should be returned to our Service Centre in Scunthorpe for repair or replacement under warranty. Any repairs, attempted repairs or replaced components not carried out by the Meyertech Service Centre will void all Meyertech warranties and liabilities.

If your ZVR-530 has to be returned to our Service Centre please follow the returns procedure below, otherwise delays may be incurred in returning or replacing the ZVR-530.

Support

At Meyertech our staff understand quality support is important to you, vital in fact, which is why we place such a high precedence on providing it.

For all matters relating to support go to our website to find the information you require visit
<http://www.meyertech.co.uk/support.html>

Disposal

There are no additional requirements beyond safe working practice in the decommissioning of the Meyertech ZVR-530.

However the ZVR-530 contains printed circuit boards populated with electronic components. The whole unit must be returned to **Meyertech Service Centre** for final disposal. Please follow the normal returns procedure.

Warranty

Please refer to Meyertech Limited 'Terms & Conditions of Sale of Goods & Services' for interpretation.

1. If the Buyer establishes to the Seller's reasonable satisfaction that there is a defect in the materials or workmanship of the Goods manufactured, then the Seller shall at its option, at its sole discretion and within a reasonable time,
 - a. arrange for the repair or making good such defect or failure in such Goods free of charge to the Buyer (including all costs of transportation of any Goods or materials to and from the Buyer for that purpose),
 - b. replace such Goods with Goods which are in all respects in accordance with the Contract, or
- subject, in every case, to the remaining provisions of this Condition 1 provided that the liability of the Seller under this Condition 1 shall in no event exceed the purchase price of such Goods and performance of anyone of the above options shall constitute an entire discharge of the Seller's liability under this warranty.
2. Condition 1 shall not apply unless the Buyer:
 - a. notifies the Seller in writing of the alleged defect within 12 (twelve) months from delivery or such other period or periods as may be agreed in writing between the Seller and the Buyer, and
 - b. allows the Seller a reasonable opportunity to inspect the relevant Goods.
3. For the avoidance of doubt, the Seller shall be under no liability under the warranty in Condition 1 above:
 - a. where such defects arise from any drawing, design or specification supplied by the Buyer; or
 - b. where such defects arise from fair wear and tear, wilful damage, or negligence of a party other than the Seller (or its employees or authorised personnel), abnormal working conditions, failure to follow the Seller's instructions (whether oral or in writing), misuse or alteration or repair of the Goods without the Seller's approval; or
 - c. where such defects arise in parts, materials or equipment which have not been manufactured or designed by the Seller but have been purchased at the Buyer's request by the Seller from the Buyer's designer and manufacturer or from some other third party (the "**Third Party Supplier**").
 - d. if the total price of the Goods has not been paid by the due date for payment
 - e. in respect of any type of defect, damage or wear specifically excluded by the Seller by notice in writing; or
 - f. if the Buyer makes any further use of the Goods after giving notice in accordance with Clause 1
4. Any repaired or replaced Goods shall be redelivered to the Buyer free of charge to the original point of delivery but otherwise in accordance with and subject to these Conditions.
5. Alternatively to Condition 1 the Seller shall be entitled at its absolute discretion on return of the defective Goods to the Seller (at the Seller's request) to refund the price of the defective Goods in the event that such price shall already have been paid by the Buyer to the Seller, or, if such price has not been paid, to relieve the Buyer of all obligation to pay the sum by the issue of a credit note in favour of the Buyer in the amount of such price.
6. In respect of all Goods supplied to the Seller by a Third Party Supplier the Seller will on request pass on to the Buyer (in so far as reasonably possible) the benefit of any warranty given to the Seller by such Third Party Supplier and will (on request) supply to the Buyer details of the terms and conditions of such warranty and copies of any relevant product information sheets, technical data sheets or product leaflets issued by such Third Party Supplier and the Buyer shall be solely responsible to the entire exclusion of the Seller for complying with the same.
7. For the purposes of Condition 1 references to Goods shall be deemed to exclude software.

8. The Buyer acknowledges that software in general is not error-free and agrees that the existence of such errors in the Software Programs shall not constitute a breach of this Contract.
9. In the event that the Buyer discovers a material error which results in the Programmed Products not performing substantially in accordance with the Functional Specification, or the Licensed Programs not performing substantially in accordance with the relevant Program Documentation and notifies the Seller of the error within 90 days from the date of the Seller making available the respective software to the Buyer (the '**warranty period**') the Seller shall at its sole option either refund the price which the Buyer has paid to the Seller (or if such price has not been paid, relieve the Buyer of all obligations to pay the sum) in respect of the respective software or use all reasonable endeavours to correct by patch or new release (at its option) that part of the software which does not so comply provided that such non-compliance has not been caused by any modification, variation or addition to the software not performed by the Seller or caused by its incorrect use, abuse or corruption of the software by use of the software with other software or on equipment with which it is incompatible,
10. To the extent permitted by English law, the Seller disclaims all other warranties, with respect to the software which it provides pursuant to the Contract, either express or implied, including but not limited to any implied warranties of satisfactory quality or fitness for any particular purpose.
11. The Buyer is solely responsible for various scanning the software that it receives from the Seller pursuant to the Contract.
12. The Seller warrants that it will use reasonable skill and care in providing the Services to the buyer